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Final Report
Volume II (Appendix 2)

THREE DIMENSIONAL FINITE ELEMENT PROGRAMS FOR PAVEMENT ANALYSIS

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Indiana
Department
of Transportation

Purdue
University

FINAL REPORT

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THREE DIMENSIONAL FINITE ELEMENT PROGRAMS FOR PAVEMENT ANALYSIS

Volume II (Appendix 2)

by

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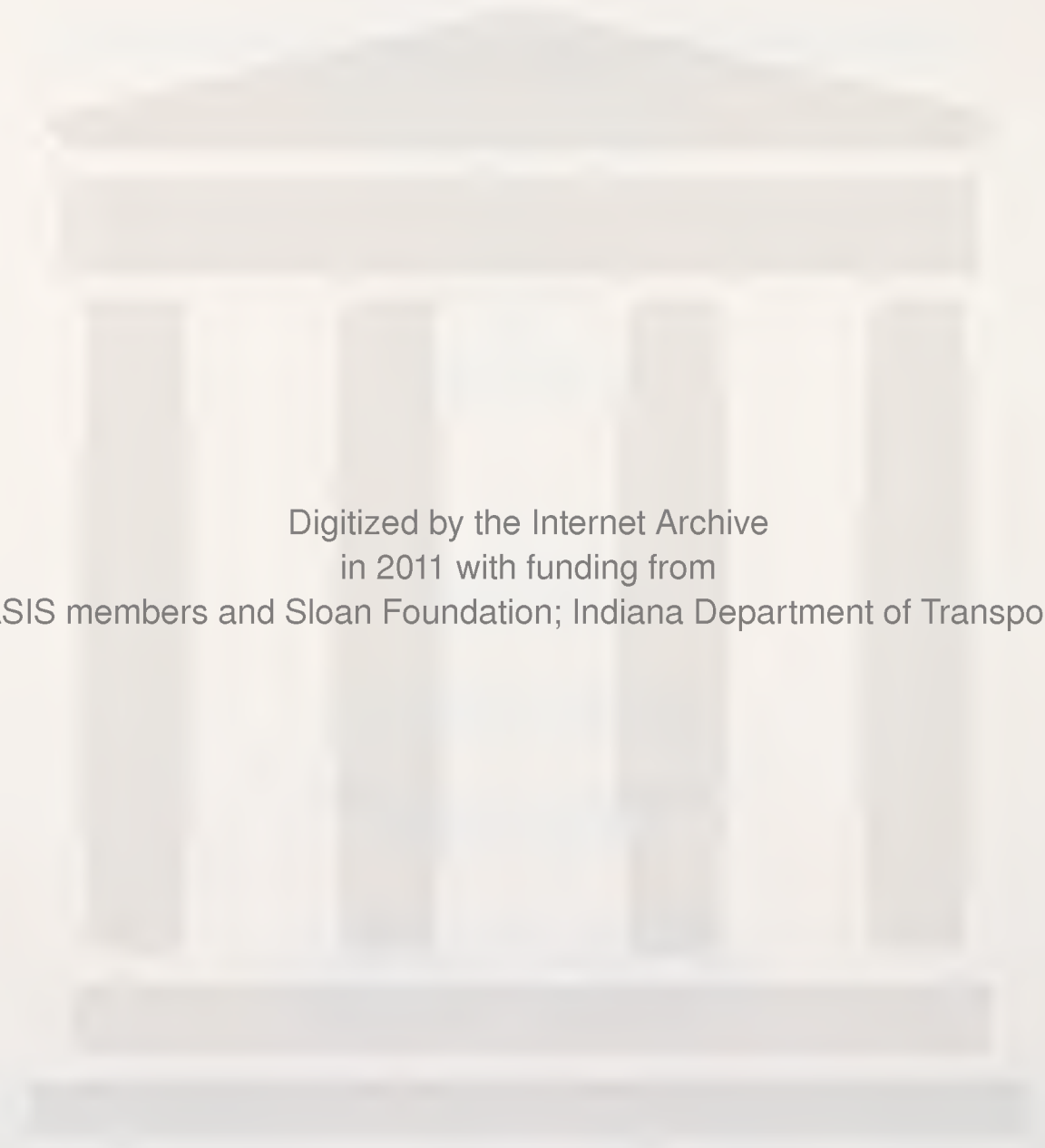
West Lafayette, IN 47907
January 1998



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Problem 1.

A rectangular plate (or half space) of elastic material subjected to ramp loadings

- **Problem description and loading functions**
- **Deflection and stress plots**
- **Input file for Soild3D**
- **Sample output of Soild3D**
- **Input and out of ANSYS program**

Problem description and loading functions

Elastic Half Space Problem

This problem has reached the steady state and the last time step is 18200 or 9.10 sec.

Input:

1. Geometry and finite element mesh are given.

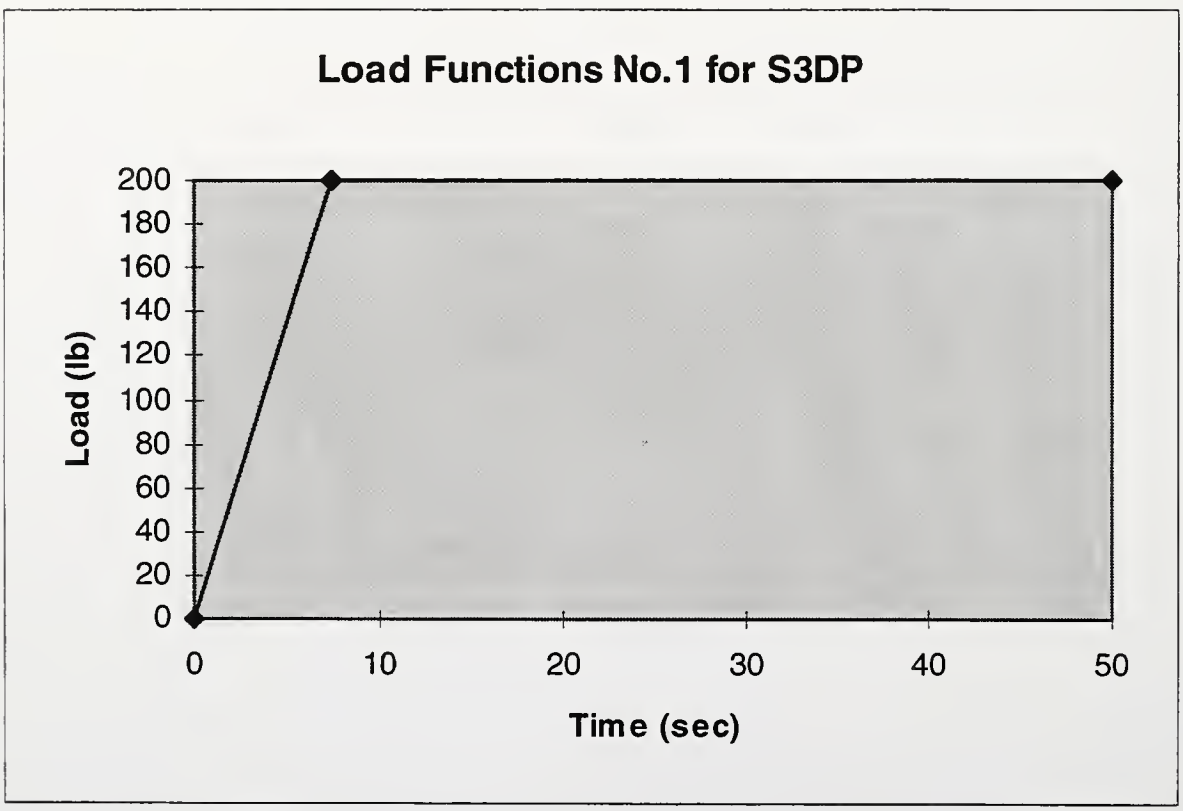
2. Material used in this problem is metal with the following properties:

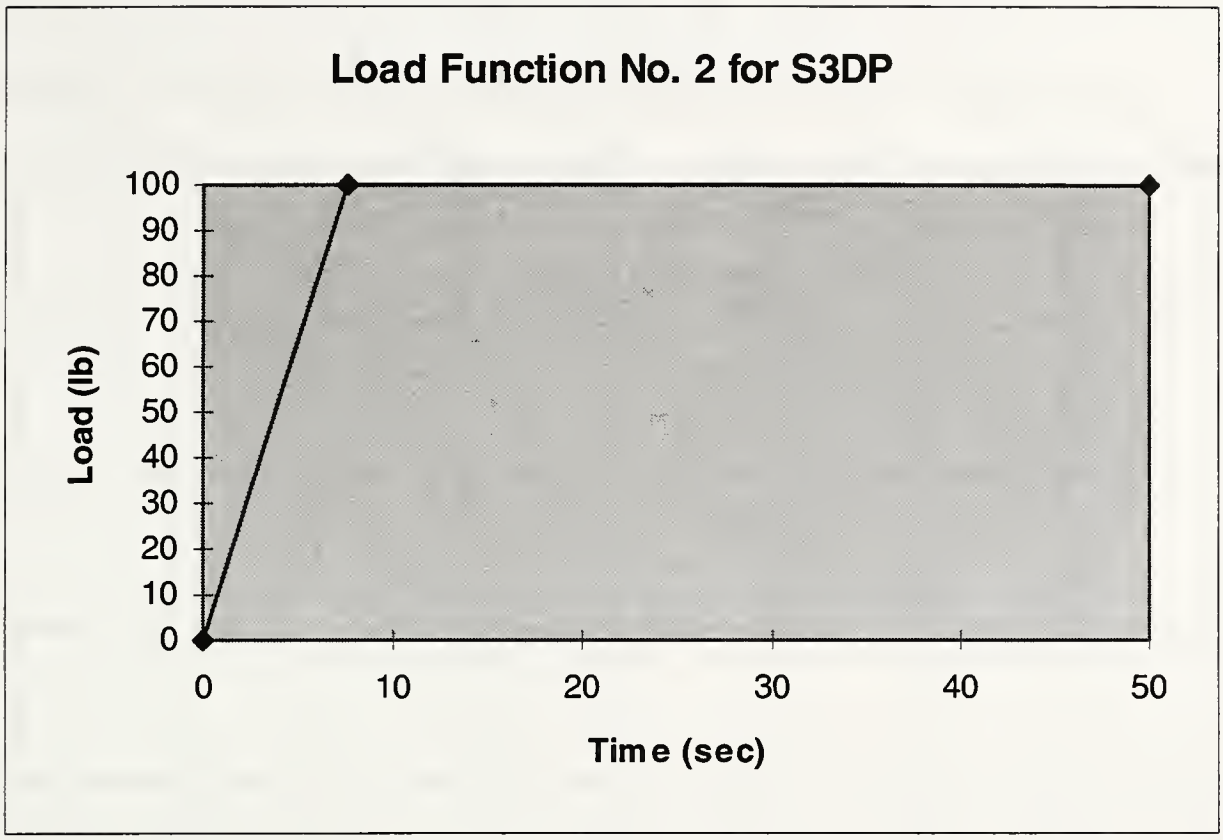
$$E = 15{,}000 \text{ psi}$$

$$\upsilon = 0.3$$

$$\rho = 7.4\text{e-}2 \quad lb - \sec^2 / in^4$$

3. Loading functions for S3DP are ramp loading functions as shown:



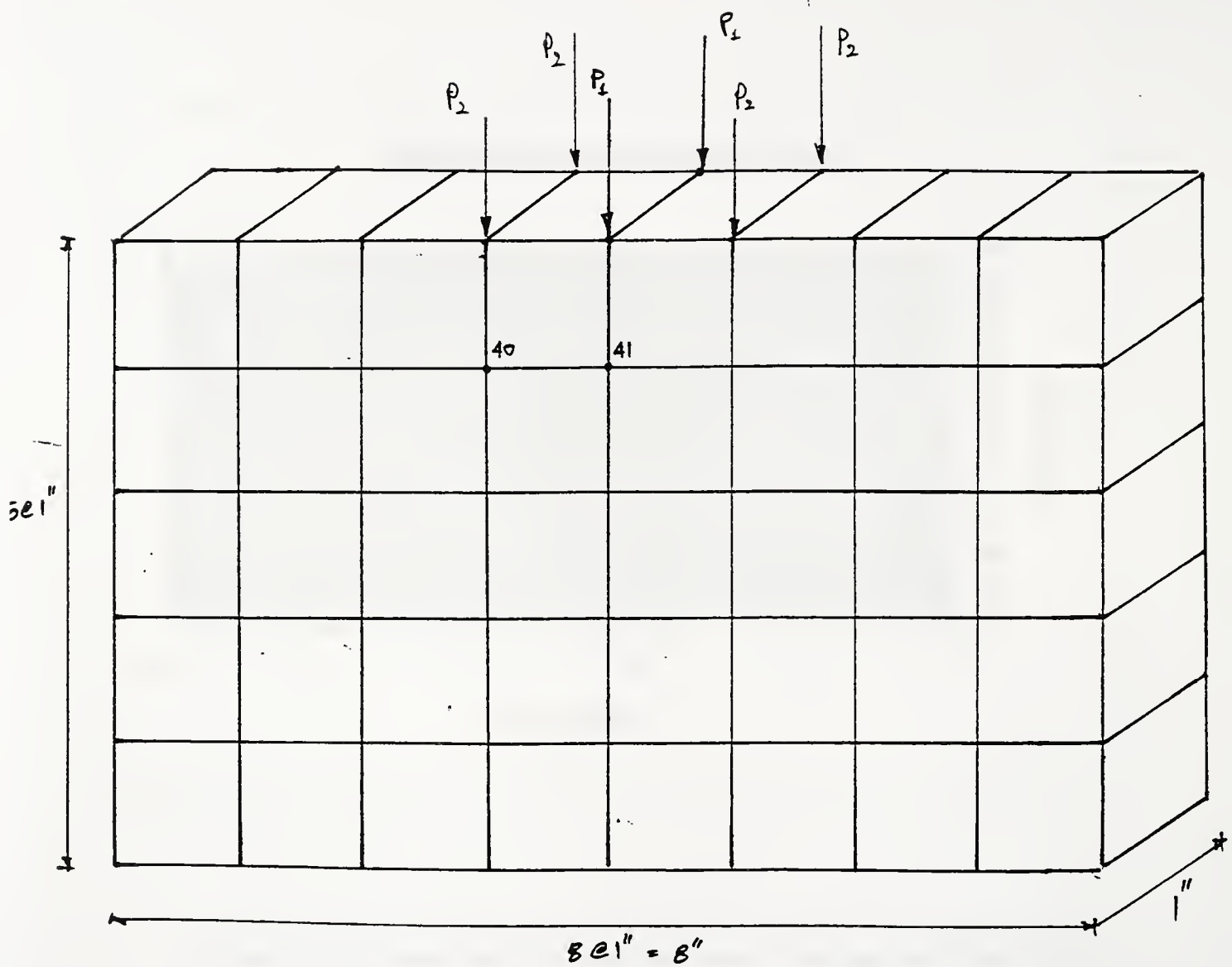


4. The examples for input data of both S3DP and ANSYS are shown after the problem results

Problem Results

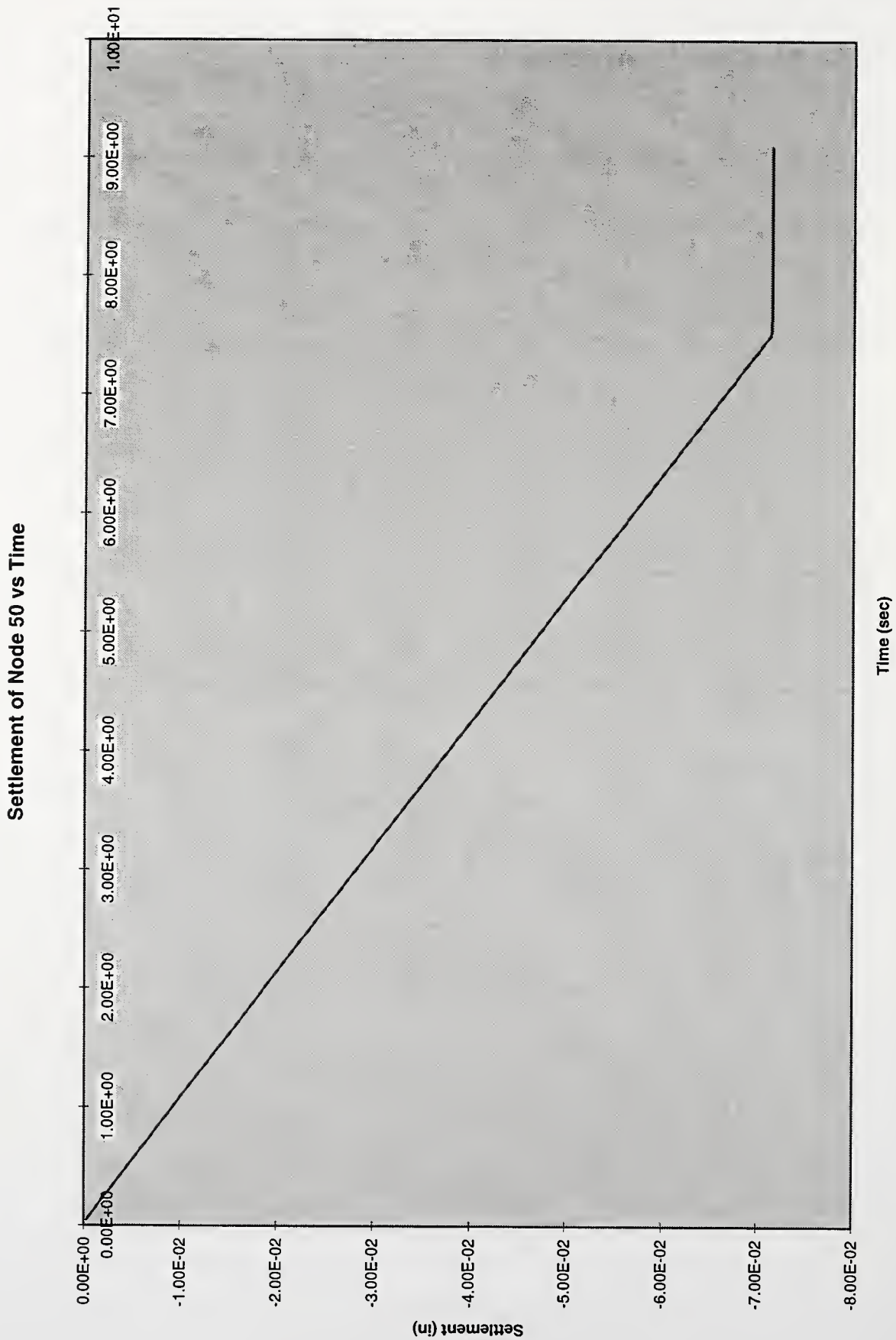
S3D Results:

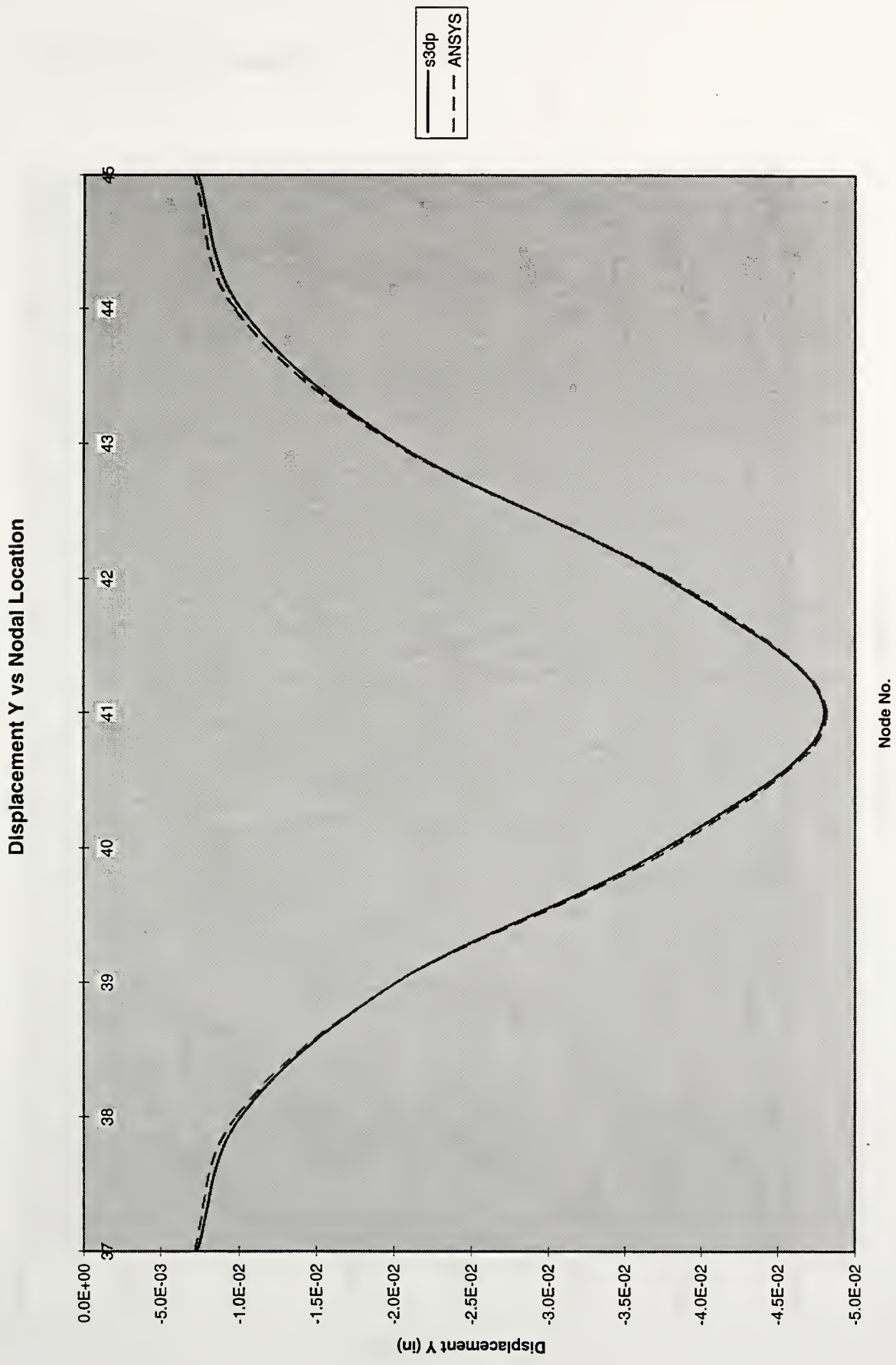
1. The Settlements of node no. 50 versus time

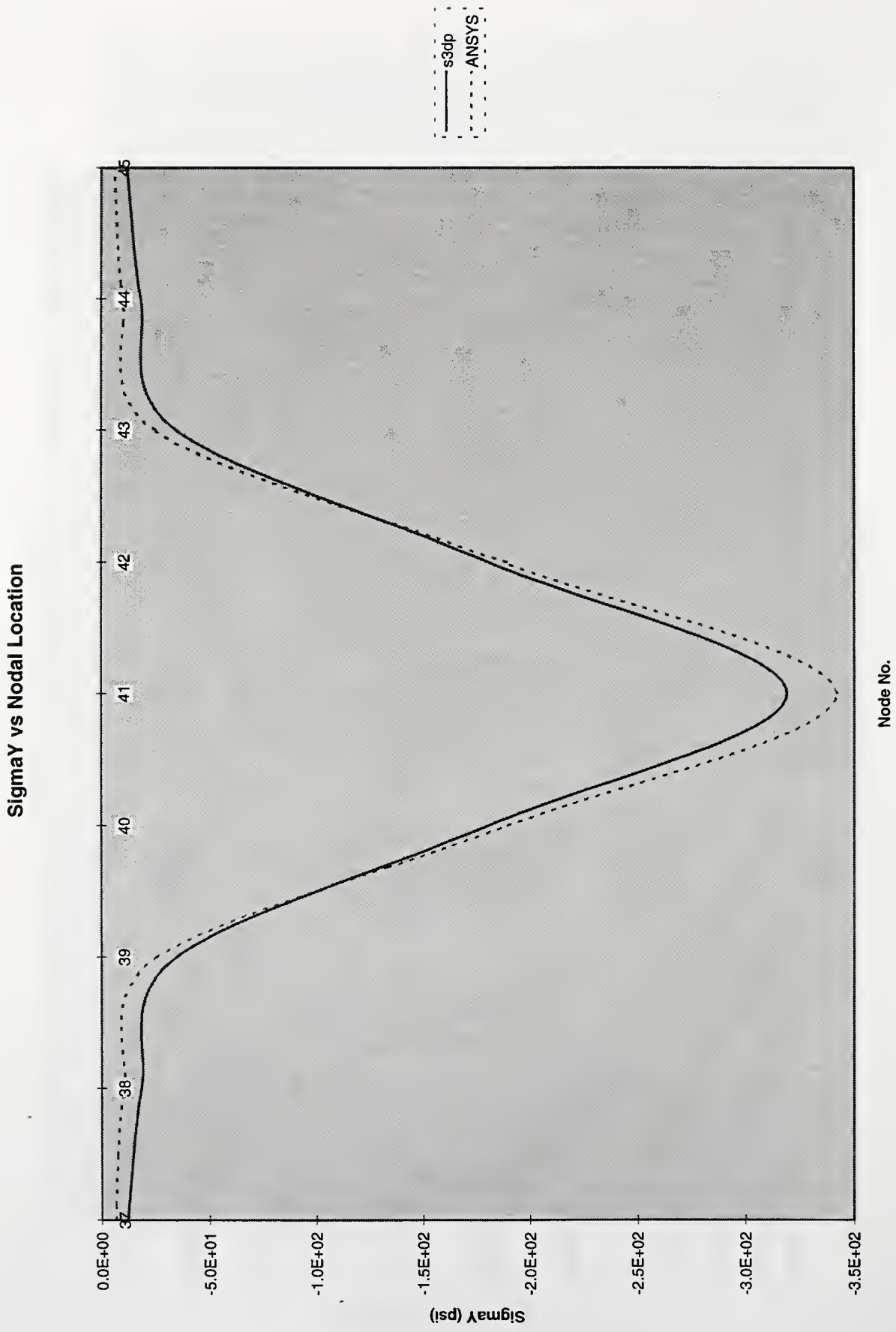


FINITE ELEMENT MESH

Deflection and stress plots


Settlement of Node 50 vs Time
Settlement (in)
Time (sec)
0.00E+00
-1.00E-02
-2.00E-02
-3.00E-02
-4.00E-02
-5.00E-02
-6.00E-02
-7.00E-02
-8.00E-02
0.00E+00
1.00E+00
2.00E+00
3.00E+00
4.00E+00
5.00E+00
6.00E+00
7.00E+00
8.00E+00
9.00E+00
1.00E+01


Displacement Y vs Nodal Location
s3dp
ANSYS
Displacement Y (in)
0.0E+00
-5.0E-03
-1.0E-02
-1.5E-02
-2.0E-02
-2.5E-02
-3.0E-02
-3.5E-02
-4.0E-02
-4.5E-02
-5.0E-02
37
38
39
40
41
42
43
44
45
Node No.


SigmaY vs Nodal Location
s3dp
ANSYS
SigmaY (psi)
0.0E+00
-5.0E+01
-1.0E+02
-1.5E+02
-2.0E+02
-2.5E+02
-3.0E+02
-3.5E+02
37
38
39
40
41
42
43
44
45
Node No.

Input file for Solid3D

Input Data File

```
straight edge boundary w/ ramp load on Elastic material
100 108 40 1 18 3 1000000  5.e-4  870  1.e-10  0.
0 1 0 1
1     0.    0.    1.    1   1   1
2     1.    0.    1.    1   1   1
3     2.    0.    1.    1   1   1
4     3.    0.    1.    1   1   1
5     4.    0.    1.    1   1   1
6     5.    0.    1.    1   1   1
7     6.    0.    1.    1   1   1
8     7.    0.    1.    1   1   1
9     8.    0.    1.    1   1   1
10    0.    1.    1.    1   0   0
11    1.    1.    1.    0   0   0
12    2.    1.    1.    0   0   0
13    3.    1.    1.    0   0   0
14    4.    1.    1.    0   0   0
15    5.    1.    1.    0   0   0
16    6.    1.    1.    0   0   0
17    7.    1.    1.    0   0   0
18    8.    1.    1.    1   0   0
19    0.    2.    1.    1   0   0
20    1.    2.    1.    0   0   0
21    2.    2.    1.    0   0   0
22    3.    2.    1.    0   0   0
23    4.    2.    1.    0   0   0
24    5.    2.    1.    0   0   0
25    6.    2.    1.    0   0   0
26    7.    2.    1.    0   0   0
27    8.    2.    1.    1   0   0
28    0.    3.    1.    1   0   0
29    1.    3.    1.    0   0   0
30    2.    3.    1.    0   0   0
31    3.    3.    1.    0   0   0
32    4.    3.    1.    0   0   0
33    5.    3.    1.    0   0   0
34    6.    3.    1.    0   0   0
35    7.    3.    1.    0   0   0
36    8.    3.    1.    1   0   0
37    0.    4.    1.    1   0   0
38    1.    4.    1.    0   0   0
39    2.    4.    1.    0   0   0
40    3.    4.    1.    0   0   0
41    4.    4.    1.    0   0   0
42    5.    4.    1.    0   0   0
43    6.    4.    1.    0   0   0
44    7.    4.    1.    0   0   0
45    8.    4.    1.    1   0   0
46    0.    5.    1.    1   0   0
47    1.    5.    1.    0   0   0
48    2.    5.    1.    0   0   0
49    3.    5.    1.    0   0   0
50    4.    5.    1.    0   0   0
51    5.    5.    1.    0   0   0
```

52	6.	5.	1.	0	0	0
53	7.	5.	1.	0	0	0
54	8.	5.	1.	1	0	0
55	0.	0.	0.	1	1	1
56	1.	0.	0.	1	1	1
57	2.	0.	0.	1	1	1
58	3.	0.	0.	1	1	1
59	4.	0.	0.	1	1	1
60	5.	0.	0.	1	1	1
61	6.	0.	0.	1	1	1
62	7.	0.	0.	1	1	1
63	8.	0.	0.	1	1	1
64	0.	1.	0.	1	0	0
65	1.	1.	0.	0	0	0
66	2.	1.	0.	0	0	0
67	3.	1.	0.	0	0	0
68	4.	1.	0.	0	0	0
69	5.	1.	0.	0	0	0
70	6.	1.	0.	0	0	0
71	7.	1.	0.	0	0	0
72	8.	1.	0.	1	0	0
73	0.	2.	0.	1	0	0
74	1.	2.	0.	0	0	0
75	2.	2.	0.	0	0	0
76	3.	2.	0.	0	0	0
77	4.	2.	0.	0	0	0
78	5.	2.	0.	0	0	0
79	6.	2.	0.	0	0	0
80	7.	2.	0.	0	0	0
81	8.	2.	0.	1	0	0
82	0.	3.	0.	1	0	0
83	1.	3.	0.	0	0	0
84	2.	3.	0.	0	0	0
85	3.	3.	0.	0	0	0
86	4.	3.	0.	0	0	0
87	5.	3.	0.	0	0	0
88	6.	3.	0.	0	0	0
89	7.	3.	0.	0	0	0
90	8.	3.	0.	1	0	0
91	0.	4.	0.	1	0	0
92	1.	4.	0.	0	0	0
93	2.	4.	0.	0	0	0
94	3.	4.	0.	0	0	0
95	4.	4.	0.	0	0	0
96	5.	4.	0.	0	0	0
97	6.	4.	0.	0	0	0
98	7.	4.	0.	0	0	0
99	8.	4.	0.	1	0	0
100	0.	5.	0.	1	0	0
101	1.	5.	0.	0	0	0
102	2.	5.	0.	0	0	0
103	3.	5.	0.	0	0	0
104	4.	5.	0.	0	0	0
105	5.	5.	0.	0	0	0
106	6.	5.	0.	0	0	0
107	7.	5.	0.	0	0	0

```
108    8.     5.     0.     1    0    0
1   1   2   11   10   55   56   65   64   1   1   1   1   1
2   2   3   12   11   56   57   66   65   1   1   2   1   1
3   3   4   13   12   57   58   67   66   1   1   3   1   1
4   4   5   14   13   58   59   68   67   1   1   4   1   1
5   5   6   15   14   59   60   69   68   1   1   5   1   1
6   6   7   16   15   60   61   70   69   1   1   6   1   1
7   7   8   17   16   61   62   71   70   1   1   7   1   1
8   8   9   18   17   62   63   72   71   1   1   8   1   1
9    10   11   20   19   64   65   74   73   1   2   1   1   1
10   11   12   21   20   65   66   75   74   1   2   2   1   1
11   12   13   22   21   66   67   76   75   1   2   3   1   1
12   13   14   23   22   67   68   77   76   1   2   4   1   1
13   14   15   24   23   68   69   78   77   1   2   5   1   1
14   15   16   25   24   69   70   79   78   1   2   6   1   1
15   16   17   26   25   70   71   80   79   1   2   7   1   1
16   17   18   27   26   71   72   81   80   1   2   8   1   1
17   19   20   29   28   73   74   83   82   1   3   1   1   1
18   20   21   30   29   74   75   84   83   1   3   2   1   1
19   21   22   31   30   75   76   85   84   1   3   3   1   1
20   22   23   32   31   76   77   86   85   1   3   4   1   1
21   23   24   33   32   77   78   87   86   1   3   5   1   1
22   24   25   34   33   78   79   88   87   1   3   6   1   1
23   25   26   35   34   79   80   89   88   1   3   7   1   1
24   26   27   36   35   80   81   90   89   1   3   8   1   1
25   28   29   38   37   82   83   92   91   1   4   1   1   1
26   29   30   39   38   83   84   93   92   1   4   2   1   1
27   30   31   40   39   84   85   94   93   1   4   3   1   1
28   31   32   41   40   85   86   95   94   1   4   4   1   1
29   32   33   42   41   86   87   96   95   1   4   5   1   1
30   33   34   43   42   87   88   97   96   1   4   6   1   1
31   34   35   44   43   88   89   98   97   1   4   7   1   1
32   35   36   45   44   89   90   99   98   1   4   8   1   1
33   37   38   47   46   91   92   101   100   1   5   1   1   1
34   38   39   48   47   92   93   102   101   1   5   2   1   1
35   39   40   49   48   93   94   103   102   1   5   3   1   1
36   40   41   50   49   94   95   104   103   1   5   4   1   1
37   41   42   51   50   95   96   105   104   1   5   5   1   1
38   42   43   52   51   96   97   106   105   1   5   6   1   1
39   43   44   53   52   97   98   107   106   1   5   7   1   1
40   44   45   54   53   98   99   108   107   1   5   8   1   1
1 1 7.4e-2  15000.0  0.30  130.
0    0   1   1000.   0
2 6
3
0.              0.0
7.5          -200.0
100.         -200.0
3
0.              0.0
7.5          -100.0
100.         -100.0
50  2 1
104 2 1
49  2 2
103 2 2
```

```
51   2 2
105  2 2

37 3 2
38 3 2
39 3 2
40 3 2
41 3 2
42 3 2
43 3 2
44 3 2
45 3 2

37 0 2
38 0 2
39 0 2
40 0 2
41 0 2
42 0 2
43 0 2
44 0 2
45 0 2
```

Sample output file for Solid3D

Input Information Files

card 1 straight edge boundary w/ ramp load on Elastic material

---

card 2 parameter card

no of time-steps skipped between outputs	=	100
number of nodes	=	108
number of elements	=	40
number of materials	=	1
number of output req	=	18
no. of d.o.f/node	=	3
no. of time steps	=	1000000
time increment	=	.500E-03
coeff of mass damping	=	.870E+03
tolerance limit	=	.100E-09
acceleration of gravity	=	.00000

card 3 index card

index for accel.	=	0
index for force	=	1
index for I. C.	=	0
index for mesh output(1) or not(0)	=	1

card 4 nodal point data

node no.	x-ord	y-ord	z-ord	ifx	ify	ifz
1	.00	.00	1.00	1	1	1
2	1.00	.00	1.00	1	1	1
3	2.00	.00	1.00	1	1	1
4	3.00	.00	1.00	1	1	1
5	4.00	.00	1.00	1	1	1
6	5.00	.00	1.00	1	1	1
7	6.00	.00	1.00	1	1	1
8	7.00	.00	1.00	1	1	1
9	8.00	.00	1.00	1	1	1
10	.00	1.00	1.00	1	0	0
11	1.00	1.00	1.00	0	0	0
12	2.00	1.00	1.00	0	0	0
13	3.00	1.00	1.00	0	0	0
14	4.00	1.00	1.00	0	0	0
15	5.00	1.00	1.00	0	0	0
16	6.00	1.00	1.00	0	0	0
17	7.00	1.00	1.00	0	0	0
18	8.00	1.00	1.00	1	0	0
19	.00	2.00	1.00	1	0	0
20	1.00	2.00	1.00	0	0	0
21	2.00	2.00	1.00	0	0	0
22	3.00	2.00	1.00	0	0	0
23	4.00	2.00	1.00	0	0	0
24	5.00	2.00	1.00	0	0	0
25	6.00	2.00	1.00	0	0	0
26	7.00	2.00	1.00	0	0	0
27	8.00	2.00	1.00	1	0	0
28	.00	3.00	1.00	1	0	0
29	1.00	3.00	1.00	0	0	0
30	2.00	3.00	1.00	0	0	0
31	3.00	3.00	1.00	0	0	0
32	4.00	3.00	1.00	0	0	0

33	5.00	3.00	1.00	0	0	0
34	6.00	3.00	1.00	0	0	0
35	7.00	3.00	1.00	0	0	0
36	8.00	3.00	1.00	1	0	0
37	.00	4.00	1.00	1	0	0
38	1.00	4.00	1.00	0	0	0
39	2.00	4.00	1.00	0	0	0
40	3.00	4.00	1.00	0	0	0
41	4.00	4.00	1.00	0	0	0
42	5.00	4.00	1.00	0	0	0
43	6.00	4.00	1.00	0	0	0
44	7.00	4.00	1.00	0	0	0
45	8.00	4.00	1.00	1	0	0
46	.00	5.00	1.00	1	0	0
47	1.00	5.00	1.00	0	0	0
48	2.00	5.00	1.00	0	0	0
49	3.00	5.00	1.00	0	0	0
50	4.00	5.00	1.00	0	0	0
51	5.00	5.00	1.00	0	0	0
52	6.00	5.00	1.00	0	0	0
53	7.00	5.00	1.00	0	0	0
54	8.00	5.00	1.00	1	0	0
55	.00	.00	.00	1	1	1
56	1.00	.00	.00	1	1	1
57	2.00	.00	.00	1	1	1
58	3.00	.00	.00	1	1	1
59	4.00	.00	.00	1	1	1
60	5.00	.00	.00	1	1	1
61	6.00	.00	.00	1	1	1
62	7.00	.00	.00	1	1	1
63	8.00	.00	.00	1	1	1
64	.00	1.00	.00	1	0	0
65	1.00	1.00	.00	0	0	0
66	2.00	1.00	.00	0	0	0
67	3.00	1.00	.00	0	0	0
68	4.00	1.00	.00	0	0	0
69	5.00	1.00	.00	0	0	0
70	6.00	1.00	.00	0	0	0
71	7.00	1.00	.00	0	0	0
72	8.00	1.00	.00	1	0	0
73	.00	2.00	.00	1	0	0
74	1.00	2.00	.00	0	0	0
75	2.00	2.00	.00	0	0	0
76	3.00	2.00	.00	0	0	0
77	4.00	2.00	.00	0	0	0
78	5.00	2.00	.00	0	0	0
79	6.00	2.00	.00	0	0	0
80	7.00	2.00	.00	0	0	0
81	8.00	2.00	.00	1	0	0
82	.00	3.00	.00	1	0	0
83	1.00	3.00	.00	0	0	0
84	2.00	3.00	.00	0	0	0
85	3.00	3.00	.00	0	0	0
86	4.00	3.00	.00	0	0	0
87	5.00	3.00	.00	0	0	0
88	6.00	3.00	.00	0	0	0
89	7.00	3.00	.00	0	0	0

90	8.00	3.00	.00	1	0	0
91	.00	4.00	.00	1	0	0
92	1.00	4.00	.00	0	0	0
93	2.00	4.00	.00	0	0	0
94	3.00	4.00	.00	0	0	0
95	4.00	4.00	.00	0	0	0
96	5.00	4.00	.00	0	0	0
97	6.00	4.00	.00	0	0	0
98	7.00	4.00	.00	0	0	0
99	8.00	4.00	.00	1	0	0
100	.00	5.00	.00	1	0	0
101	1.00	5.00	.00	0	0	0
102	2.00	5.00	.00	0	0	0
103	3.00	5.00	.00	0	0	0
104	4.00	5.00	.00	0	0	0
105	5.00	5.00	.00	0	0	0
106	6.00	5.00	.00	0	0	0
107	7.00	5.00	.00	0	0	0
108	8.00	5.00	.00	1	0	0

card 5 element data

ele.no.	N1	N2	N3	N4	N5	N6	N7	N8	mat	row	col	E-con.
1	1	2	11	10	55	56	65	64	1	1	1	1
2	2	3	12	11	56	57	66	65	1	1	2	1
3	3	4	13	12	57	58	67	66	1	1	3	1
4	4	5	14	13	58	59	68	67	1	1	4	1
5	5	6	15	14	59	60	69	68	1	1	5	1
6	6	7	16	15	60	61	70	69	1	1	6	1
7	7	8	17	16	61	62	71	70	1	1	7	1
8	8	9	18	17	62	63	72	71	1	1	8	1
9	10	11	20	19	64	65	74	73	1	2	1	1
10	11	12	21	20	65	66	75	74	1	2	2	1
11	12	13	22	21	66	67	76	75	1	2	3	1
12	13	14	23	22	67	68	77	76	1	2	4	1
13	14	15	24	23	68	69	78	77	1	2	5	1
14	15	16	25	24	69	70	79	78	1	2	6	1
15	16	17	26	25	70	71	80	79	1	2	7	1
16	17	18	27	26	71	72	81	80	1	2	8	1
17	19	20	29	28	73	74	83	82	1	3	1	1
18	20	21	30	29	74	75	84	83	1	3	2	1
19	21	22	31	30	75	76	85	84	1	3	3	1
20	22	23	32	31	76	77	86	85	1	3	4	1
21	23	24	33	32	77	78	87	86	1	3	5	1
22	24	25	34	33	78	79	88	87	1	3	6	1
23	25	26	35	34	79	80	89	88	1	3	7	1
24	26	27	36	35	80	81	90	89	1	3	8	1
25	28	29	38	37	82	83	92	91	1	4	1	1
26	29	30	39	38	83	84	93	92	1	4	2	1
27	30	31	40	39	84	85	94	93	1	4	3	1
28	31	32	41	40	85	86	95	94	1	4	4	1
29	32	33	42	41	86	87	96	95	1	4	5	1
30	33	34	43	42	87	88	97	96	1	4	6	1
31	34	35	44	43	88	89	98	97	1	4	7	1
32	35	36	45	44	89	90	99	98	1	4	8	1
33	37	38	47	46	91	92	101	100	1	5	1	1
34	38	39	48	47	92	93	102	101	1	5	2	1
35	39	40	49	48	93	94	103	102	1	5	3	1

36	40	41	50	49	94	95	104	103	1	5	4	1
37	41	42	51	50	95	96	105	104	1	5	5	1
38	42	43	52	51	96	97	106	105	1	5	6	1
39	43	44	53	52	97	98	107	106	1	5	7	1
40	44	45	54	53	98	99	108	107	1	5	8	1

card 6 & 7 material property data

material no.	mass density	Youngs modulus	Poisson ratio	hardening rules(b)	uniaxial yield stress
1	.7400E-01	.1500E+05	.300	.000	.1300E+03

card 11 prescribed impact force

total no. of impact force history = 2

total no. of nodes applied by impact force = 6

card 12 & 13 impact force history card

force history no.	pair no.	time	iforce
1	1	.0000E+00	.0000E+00
1	2	.7500E+01	-.2000E+03
1	3	.1000E+03	-.2000E+03

card 12 & 13 impact force history card

force history no.	pair no.	time	iforce
2	1	.0000E+00	.0000E+00
2	2	.7500E+01	-.1000E+03
2	3	.1000E+03	-.1000E+03

card 14 nodal impact force information

node no.	x-(1),y-(2),z-(3)	force history no.
50	2	1
104	2	1
49	2	2
103	2	2
51	2	2
105	2	2

card 21 output information card

seq.	node#	d-(0),v-(1),a-(2), stress-(3)	x(1),y(2),z(3) xy(4),yz(5),xz(6)
1	37	3	2
2	38	3	2
3	39	3	2
4	40	3	2
5	41	3	2
6	42	3	2
7	43	3	2
8	44	3	2
9	45	3	2
10	37	0	2
11	38	0	2
12	39	0	2
13	40	0	2
14	41	0	2
15	42	0	2
16	43	0	2
17	44	0	2
18	45	0	2

Output Information Files

```
card  21   output information card
              seq.     node#      d-(0),v-(1),a-(2),    x(1),y(2),z(3)
                                       stress-(3)       xy(4),yz(5),xz(6)
                1        37                3                  2
                2        38                3                  2
                3        39                3                  2
                4        40                3                  2
                5        41                3                  2
                6        42                3                  2
                7        43                3                  2
                8        44                3                  2
                9        45                3                  2
               10        37                0                  2
               11        38                0                  2
               12        39                0                  2
               13        40                0                  2
               14        41                0                  2
               15        42                0                  2
               16        43                0                  2
               17        44                0                  2
               18        45                0                  2
 time =  .50000E-01 -.926E-02 -.342E-01 -.874E-01 -.941E+00 -.177E+01 -.941E+00
                    -.874E-01 -.342E-01 -.926E-02 -.358E-05 -.115E-04 -.491E-04
                    -.128E-03 -.177E-03 -.128E-03 -.491E-04 -.115E-04 -.358E-05

 time =  .10000E+00 -.559E-01 -.124E+00 -.284E+00 -.210E+01 -.383E+01 -.210E+01
                    -.284E+00 -.124E+00 -.559E-01 -.325E-04 -.581E-04 -.161E-03
                    -.352E-03 -.468E-03 -.352E-03 -.161E-03 -.581E-04 -.325E-04

 time =  .15000E+00 -.128E+00 -.240E+00 -.510E+00 -.330E+01 -.593E+01 -.330E+01
                    -.510E+00 -.240E+00 -.128E+00 -.759E-04 -.120E-03 -.289E-03
                    -.596E-03 -.778E-03 -.596E-03 -.289E-03 -.120E-03 -.759E-04

 time =  .20000E+00 -.207E+00 -.364E+00 -.745E+00 -.450E+01 -.804E+01 -.450E+01
                    -.745E+00 -.364E+00 -.207E+00 -.124E-03 -.186E-03 -.422E-03
                    -.845E-03 -.109E-02 -.845E-03 -.422E-03 -.186E-03 -.124E-03

 time =  .25000E+00 -.288E+00 -.489E+00 -.982E+00 -.571E+01 -.101E+02 -.571E+01
                    -.982E+00 -.489E+00 -.288E+00 -.173E-03 -.254E-03 -.557E-03
                    -.109E-02 -.141E-02 -.109E-02 -.557E-03 -.254E-03 -.173E-03

 time =  .30000E+00 -.370E+00 -.616E+00 -.122E+01 -.692E+01 -.123E+02 -.692E+01
                    -.122E+01 -.616E+00 -.370E+00 -.222E-03 -.322E-03 -.692E-03
                    -.134E-02 -.173E-02 -.134E-02 -.692E-03 -.322E-03 -.222E-03

 time =  .35000E+00 -.452E+00 -.742E+00 -.146E+01 -.812E+01 -.144E+02 -.812E+01
                    -.146E+01 -.742E+00 -.452E+00 -.272E-03 -.390E-03 -.827E-03
                    -.159E-02 -.204E-02 -.159E-02 -.827E-03 -.390E-03 -.272E-03

 time =  .40000E+00 -.535E+00 -.869E+00 -.169E+01 -.933E+01 -.165E+02 -.933E+01
                    -.169E+01 -.869E+00 -.535E+00 -.321E-03 -.458E-03 -.961E-03
                    -.184E-02 -.236E-02 -.184E-02 -.961E-03 -.458E-03 -.321E-03

 time =  .45000E+00 -.617E+00 -.995E+00 -.193E+01 -.105E+02 -.186E+02 -.105E+02
                    -.193E+01 -.995E+00 -.617E+00 -.371E-03 -.526E-03 -.110E-02
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                    -.209E-02 -.268E-02 -.209E-02 -.110E-02 -.526E-03 -.371E-03

time =  .50000E+00 -.699E+00 -.112E+01 -.217E+01 -.117E+02 -.207E+02 -.117E+02
                   -.217E+01 -.112E+01 -.699E+00 -.420E-03 -.594E-03 -.123E-02
                   -.235E-02 -.300E-02 -.235E-02 -.123E-02 -.594E-03 -.420E-03

time =  .55000E+00 -.781E+00 -.125E+01 -.240E+01 -.129E+02 -.228E+02 -.129E+02
                   -.240E+01 -.125E+01 -.781E+00 -.470E-03 -.662E-03 -.137E-02
                   -.260E-02 -.331E-02 -.260E-02 -.137E-02 -.662E-03 -.470E-03

time =  .60000E+00 -.863E+00 -.137E+01 -.264E+01 -.142E+02 -.249E+02 -.142E+02
                   -.264E+01 -.137E+01 -.863E+00 -.519E-03 -.730E-03 -.150E-02
                   -.285E-02 -.363E-02 -.285E-02 -.150E-02 -.730E-03 -.519E-03

time =  .65000E+00 -.945E+00 -.150E+01 -.288E+01 -.154E+02 -.270E+02 -.154E+02
                   -.288E+01 -.150E+01 -.945E+00 -.569E-03 -.798E-03 -.164E-02
                   -.310E-02 -.395E-02 -.310E-02 -.164E-02 -.798E-03 -.569E-03

time =  .70000E+00 -.103E+01 -.163E+01 -.311E+01 -.166E+02 -.292E+02 -.166E+02
                   -.311E+01 -.163E+01 -.103E+01 -.618E-03 -.866E-03 -.177E-02
                   -.335E-02 -.427E-02 -.335E-02 -.177E-02 -.866E-03 -.618E-03

time =  .75000E+00 -.111E+01 -.175E+01 -.335E+01 -.178E+02 -.313E+02 -.178E+02
                   -.335E+01 -.175E+01 -.111E+01 -.667E-03 -.934E-03 -.191E-02
                   -.360E-02 -.458E-02 -.360E-02 -.191E-02 -.934E-03 -.667E-03

time =  .80000E+00 -.119E+01 -.188E+01 -.359E+01 -.190E+02 -.334E+02 -.190E+02
                   -.359E+01 -.188E+01 -.119E+01 -.717E-03 -.100E-02 -.204E-02
                   -.385E-02 -.490E-02 -.385E-02 -.204E-02 -.100E-02 -.717E-03

time =  .85000E+00 -.127E+01 -.201E+01 -.382E+01 -.202E+02 -.355E+02 -.202E+02
                   -.382E+01 -.201E+01 -.127E+01 -.766E-03 -.107E-02 -.218E-02
                   -.410E-02 -.522E-02 -.410E-02 -.218E-02 -.107E-02 -.766E-03

time =  .90000E+00 -.135E+01 -.213E+01 -.406E+01 -.214E+02 -.376E+02 -.214E+02
                   -.406E+01 -.213E+01 -.135E+01 -.816E-03 -.114E-02 -.231E-02
                   -.435E-02 -.554E-02 -.435E-02 -.231E-02 -.114E-02 -.816E-03

time =  .95000E+00 -.144E+01 -.226E+01 -.430E+01 -.226E+02 -.397E+02 -.226E+02
                   -.430E+01 -.226E+01 -.144E+01 -.865E-03 -.121E-02 -.244E-02
                   -.460E-02 -.585E-02 -.460E-02 -.244E-02 -.121E-02 -.865E-03

time =  .10000E+01 -.152E+01 -.238E+01 -.453E+01 -.238E+02 -.418E+02 -.238E+02
                   -.453E+01 -.238E+01 -.152E+01 -.914E-03 -.127E-02 -.258E-02
                   -.485E-02 -.617E-02 -.485E-02 -.258E-02 -.127E-02 -.914E-03

time =  .10500E+01 -.160E+01 -.251E+01 -.477E+01 -.250E+02 -.439E+02 -.250E+02
                   -.477E+01 -.251E+01 -.160E+01 -.964E-03 -.134E-02 -.271E-02
                   -.510E-02 -.649E-02 -.510E-02 -.271E-02 -.134E-02 -.964E-03

time =  .11000E+01 -.168E+01 -.264E+01 -.501E+01 -.262E+02 -.461E+02 -.262E+02
                   -.501E+01 -.264E+01 -.168E+01 -.101E-02 -.141E-02 -.285E-02
                   -.535E-02 -.681E-02 -.535E-02 -.285E-02 -.141E-02 -.101E-02

time =  .11500E+01 -.176E+01 -.276E+01 -.524E+01 -.274E+02 -.482E+02 -.274E+02
                   -.524E+01 -.276E+01 -.176E+01 -.106E-02 -.148E-02 -.298E-02
                   -.560E-02 -.712E-02 -.560E-02 -.298E-02 -.148E-02 -.106E-02
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time =  .12000E+01 -.185E+01 -.289E+01 -.548E+01 -.286E+02 -.503E+02 -.286E+02
                   -.548E+01 -.289E+01 -.185E+01 -.111E-02 -.155E-02 -.312E-02
                   -.585E-02 -.744E-02 -.585E-02 -.312E-02 -.155E-02 -.111E-02

time =  .12500E+01 -.193E+01 -.301E+01 -.572E+01 -.298E+02 -.524E+02 -.298E+02
                   -.572E+01 -.301E+01 -.193E+01 -.116E-02 -.161E-02 -.325E-02
                   -.610E-02 -.776E-02 -.610E-02 -.325E-02 -.161E-02 -.116E-02

time =  .13000E+01 -.201E+01 -.314E+01 -.595E+01 -.310E+02 -.545E+02 -.310E+02
                   -.595E+01 -.314E+01 -.201E+01 -.121E-02 -.168E-02 -.339E-02
                   -.635E-02 -.808E-02 -.635E-02 -.339E-02 -.168E-02 -.121E-02

time =  .13500E+01 -.209E+01 -.327E+01 -.619E+01 -.323E+02 -.566E+02 -.323E+02
                   -.619E+01 -.327E+01 -.209E+01 -.126E-02 -.175E-02 -.352E-02
                   -.660E-02 -.839E-02 -.660E-02 -.352E-02 -.175E-02 -.126E-02

time =  .14000E+01 -.217E+01 -.339E+01 -.642E+01 -.335E+02 -.587E+02 -.335E+02
                   -.642E+01 -.339E+01 -.217E+01 -.131E-02 -.182E-02 -.366E-02
                   -.685E-02 -.871E-02 -.685E-02 -.366E-02 -.182E-02 -.131E-02

time =  .14500E+01 -.225E+01 -.352E+01 -.666E+01 -.347E+02 -.609E+02 -.347E+02
                   -.666E+01 -.352E+01 -.225E+01 -.136E-02 -.188E-02 -.379E-02
                   -.710E-02 -.903E-02 -.710E-02 -.379E-02 -.188E-02 -.136E-02

time =  .15000E+01 -.234E+01 -.364E+01 -.689E+01 -.359E+02 -.630E+02 -.359E+02
                   -.689E+01 -.364E+01 -.234E+01 -.141E-02 -.195E-02 -.393E-02
                   -.735E-02 -.935E-02 -.735E-02 -.393E-02 -.195E-02 -.141E-02

time =  .15500E+01 -.242E+01 -.377E+01 -.713E+01 -.371E+02 -.651E+02 -.371E+02
                   -.713E+01 -.377E+01 -.242E+01 -.146E-02 -.202E-02 -.406E-02
                   -.760E-02 -.967E-02 -.760E-02 -.406E-02 -.202E-02 -.146E-02

time =  .16000E+01 -.250E+01 -.389E+01 -.737E+01 -.383E+02 -.672E+02 -.383E+02
                   -.737E+01 -.389E+01 -.250E+01 -.151E-02 -.209E-02 -.420E-02
                   -.785E-02 -.998E-02 -.785E-02 -.420E-02 -.209E-02 -.151E-02

time =  .16500E+01 -.258E+01 -.402E+01 -.760E+01 -.395E+02 -.693E+02 -.395E+02
                   -.760E+01 -.402E+01 -.258E+01 -.156E-02 -.216E-02 -.433E-02
                   -.810E-02 -.103E-01 -.810E-02 -.433E-02 -.216E-02 -.156E-02

time =  .17000E+01 -.266E+01 -.414E+01 -.784E+01 -.407E+02 -.714E+02 -.407E+02
                   -.784E+01 -.414E+01 -.266E+01 -.160E-02 -.222E-02 -.447E-02
                   -.835E-02 -.106E-01 -.835E-02 -.447E-02 -.222E-02 -.160E-02

time =  .17500E+01 -.274E+01 -.427E+01 -.807E+01 -.419E+02 -.736E+02 -.419E+02
                   -.807E+01 -.427E+01 -.274E+01 -.165E-02 -.229E-02 -.460E-02
                   -.860E-02 -.109E-01 -.860E-02 -.460E-02 -.229E-02 -.165E-02

time =  .18000E+01 -.282E+01 -.440E+01 -.831E+01 -.431E+02 -.757E+02 -.431E+02
                   -.831E+01 -.440E+01 -.282E+01 -.170E-02 -.236E-02 -.474E-02
                   -.885E-02 -.113E-01 -.885E-02 -.474E-02 -.236E-02 -.170E-02

time =  .18500E+01 -.291E+01 -.452E+01 -.854E+01 -.443E+02 -.778E+02 -.443E+02
                   -.854E+01 -.452E+01 -.291E+01 -.175E-02 -.243E-02 -.487E-02
                   -.911E-02 -.116E-01 -.911E-02 -.487E-02 -.243E-02 -.175E-02

time =  .19000E+01 -.299E+01 -.465E+01 -.878E+01 -.455E+02 -.799E+02 -.455E+02
                   -.878E+01 -.465E+01 -.299E+01 -.180E-02 -.249E-02 -.501E-02
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                -.936E-02 -.119E-01 -.936E-02 -.501E-02 -.249E-02 -.180E-02

time =  .19500E+01 -.307E+01 -.477E+01 -.901E+01 -.467E+02 -.820E+02 -.467E+02
                -.901E+01 -.477E+01 -.307E+01 -.185E-02 -.256E-02 -.514E-02
                -.961E-02 -.122E-01 -.961E-02 -.514E-02 -.256E-02 -.185E-02

time =  .20000E+01 -.315E+01 -.490E+01 -.925E+01 -.479E+02 -.841E+02 -.479E+02
                -.925E+01 -.490E+01 -.315E+01 -.190E-02 -.263E-02 -.528E-02
                -.986E-02 -.125E-01 -.986E-02 -.528E-02 -.263E-02 -.190E-02

time =  .20500E+01 -.323E+01 -.502E+01 -.948E+01 -.491E+02 -.863E+02 -.491E+02
                -.948E+01 -.502E+01 -.323E+01 -.195E-02 -.270E-02 -.541E-02
                -.101E-01 -.128E-01 -.101E-01 -.541E-02 -.270E-02 -.195E-02

time =  .21000E+01 -.331E+01 -.515E+01 -.972E+01 -.504E+02 -.884E+02 -.504E+02
                -.972E+01 -.515E+01 -.331E+01 -.200E-02 -.277E-02 -.554E-02
                -.104E-01 -.132E-01 -.104E-01 -.554E-02 -.277E-02 -.200E-02

time =  .21500E+01 -.339E+01 -.527E+01 -.995E+01 -.516E+02 -.905E+02 -.516E+02
                -.995E+01 -.527E+01 -.339E+01 -.205E-02 -.283E-02 -.568E-02
                -.106E-01 -.135E-01 -.106E-01 -.568E-02 -.283E-02 -.205E-02

time =  .22000E+01 -.347E+01 -.540E+01 -.102E+02 -.528E+02 -.926E+02 -.528E+02
                -.102E+02 -.540E+01 -.347E+01 -.210E-02 -.290E-02 -.581E-02
                -.109E-01 -.138E-01 -.109E-01 -.581E-02 -.290E-02 -.210E-02

time =  .22500E+01 -.356E+01 -.552E+01 -.104E+02 -.540E+02 -.947E+02 -.540E+02
                -.104E+02 -.552E+01 -.356E+01 -.215E-02 -.297E-02 -.595E-02
                -.111E-01 -.141E-01 -.111E-01 -.595E-02 -.297E-02 -.215E-02

time =  .23000E+01 -.364E+01 -.565E+01 -.107E+02 -.552E+02 -.968E+02 -.552E+02
                -.107E+02 -.565E+01 -.364E+01 -.219E-02 -.304E-02 -.608E-02
                -.114E-01 -.144E-01 -.114E-01 -.608E-02 -.304E-02 -.219E-02

time =  .23500E+01 -.372E+01 -.577E+01 -.109E+02 -.564E+02 -.990E+02 -.564E+02
                -.109E+02 -.577E+01 -.372E+01 -.224E-02 -.310E-02 -.622E-02
                -.116E-01 -.148E-01 -.116E-01 -.622E-02 -.310E-02 -.224E-02

time =  .24000E+01 -.380E+01 -.590E+01 -.111E+02 -.576E+02 -.101E+03 -.576E+02
                -.111E+02 -.590E+01 -.380E+01 -.229E-02 -.317E-02 -.635E-02
                -.119E-01 -.151E-01 -.119E-01 -.635E-02 -.317E-02 -.229E-02

time =  .24500E+01 -.388E+01 -.602E+01 -.114E+02 -.588E+02 -.103E+03 -.588E+02
                -.114E+02 -.602E+01 -.388E+01 -.234E-02 -.324E-02 -.649E-02
                -.121E-01 -.154E-01 -.121E-01 -.649E-02 -.324E-02 -.234E-02

time =  .25000E+01 -.396E+01 -.615E+01 -.116E+02 -.600E+02 -.105E+03 -.600E+02
                -.116E+02 -.615E+01 -.396E+01 -.239E-02 -.331E-02 -.662E-02
                -.124E-01 -.157E-01 -.124E-01 -.662E-02 -.331E-02 -.239E-02

time =  .25500E+01 -.404E+01 -.627E+01 -.118E+02 -.612E+02 -.107E+03 -.612E+02
                -.118E+02 -.627E+01 -.404E+01 -.244E-02 -.337E-02 -.676E-02
                -.126E-01 -.160E-01 -.126E-01 -.676E-02 -.337E-02 -.244E-02

time =  .26000E+01 -.412E+01 -.640E+01 -.121E+02 -.624E+02 -.110E+03 -.624E+02
                -.121E+02 -.640E+01 -.412E+01 -.249E-02 -.344E-02 -.689E-02
                -.129E-01 -.164E-01 -.129E-01 -.689E-02 -.344E-02 -.249E-02
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time =  .26500E+01 -.420E+01 -.652E+01 -.123E+02 -.636E+02 -.112E+03 -.636E+02
                   -.123E+02 -.652E+01 -.420E+01 -.254E-02 -.351E-02 -.703E-02
                   -.131E-01 -.167E-01 -.131E-01 -.703E-02 -.351E-02 -.254E-02

time =  .27000E+01 -.429E+01 -.665E+01 -.125E+02 -.648E+02 -.114E+03 -.648E+02
                   -.125E+02 -.665E+01 -.429E+01 -.259E-02 -.358E-02 -.716E-02
                   -.134E-01 -.170E-01 -.134E-01 -.716E-02 -.358E-02 -.259E-02

time =  .27500E+01 -.437E+01 -.677E+01 -.128E+02 -.660E+02 -.116E+03 -.660E+02
                   -.128E+02 -.677E+01 -.437E+01 -.264E-02 -.364E-02 -.730E-02
                   -.136E-01 -.173E-01 -.136E-01 -.730E-02 -.364E-02 -.264E-02

time =  .28000E+01 -.445E+01 -.690E+01 -.130E+02 -.672E+02 -.118E+03 -.672E+02
                   -.130E+02 -.690E+01 -.445E+01 -.268E-02 -.371E-02 -.743E-02
                   -.139E-01 -.176E-01 -.139E-01 -.743E-02 -.371E-02 -.268E-02

time =  .28500E+01 -.453E+01 -.702E+01 -.132E+02 -.684E+02 -.120E+03 -.684E+02
                   -.132E+02 -.702E+01 -.453E+01 -.273E-02 -.378E-02 -.756E-02
                   -.141E-01 -.179E-01 -.141E-01 -.756E-02 -.378E-02 -.273E-02

time =  .29000E+01 -.461E+01 -.715E+01 -.135E+02 -.696E+02 -.122E+03 -.696E+02
                   -.135E+02 -.715E+01 -.461E+01 -.278E-02 -.385E-02 -.770E-02
                   -.144E-01 -.183E-01 -.144E-01 -.770E-02 -.385E-02 -.278E-02

time =  .29500E+01 -.469E+01 -.727E+01 -.137E+02 -.709E+02 -.124E+03 -.709E+02
                   -.137E+02 -.727E+01 -.469E+01 -.283E-02 -.392E-02 -.783E-02
                   -.146E-01 -.186E-01 -.146E-01 -.783E-02 -.392E-02 -.283E-02

time =  .30000E+01 -.477E+01 -.739E+01 -.139E+02 -.721E+02 -.127E+03 -.721E+02
                   -.139E+02 -.739E+01 -.477E+01 -.288E-02 -.398E-02 -.797E-02
                   -.149E-01 -.189E-01 -.149E-01 -.797E-02 -.398E-02 -.288E-02

time =  .30500E+01 -.485E+01 -.752E+01 -.142E+02 -.733E+02 -.129E+03 -.733E+02
                   -.142E+02 -.752E+01 -.485E+01 -.293E-02 -.405E-02 -.810E-02
                   -.151E-01 -.192E-01 -.151E-01 -.810E-02 -.405E-02 -.293E-02

time =  .31000E+01 -.493E+01 -.764E+01 -.144E+02 -.745E+02 -.131E+03 -.745E+02
                   -.144E+02 -.764E+01 -.493E+01 -.298E-02 -.412E-02 -.824E-02
                   -.154E-01 -.195E-01 -.154E-01 -.824E-02 -.412E-02 -.298E-02

time =  .31500E+01 -.501E+01 -.777E+01 -.146E+02 -.757E+02 -.133E+03 -.757E+02
                   -.146E+02 -.777E+01 -.501E+01 -.303E-02 -.419E-02 -.837E-02
                   -.156E-01 -.199E-01 -.156E-01 -.837E-02 -.419E-02 -.303E-02

time =  .32000E+01 -.509E+01 -.789E+01 -.149E+02 -.769E+02 -.135E+03 -.769E+02
                   -.149E+02 -.789E+01 -.509E+01 -.308E-02 -.425E-02 -.851E-02
                   -.159E-01 -.202E-01 -.159E-01 -.851E-02 -.425E-02 -.308E-02

time =  .32500E+01 -.518E+01 -.802E+01 -.151E+02 -.781E+02 -.137E+03 -.781E+02
                   -.151E+02 -.802E+01 -.518E+01 -.313E-02 -.432E-02 -.864E-02
                   -.161E-01 -.205E-01 -.161E-01 -.864E-02 -.432E-02 -.313E-02

time =  .33000E+01 -.526E+01 -.814E+01 -.153E+02 -.793E+02 -.139E+03 -.793E+02
                   -.153E+02 -.814E+01 -.526E+01 -.317E-02 -.439E-02 -.878E-02
                   -.164E-01 -.208E-01 -.164E-01 -.878E-02 -.439E-02 -.317E-02

time =  .33500E+01 -.534E+01 -.827E+01 -.156E+02 -.805E+02 -.141E+03 -.805E+02
                   -.156E+02 -.827E+01 -.534E+01 -.322E-02 -.446E-02 -.891E-02
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                -.166E-01 -.211E-01 -.166E-01 -.891E-02 -.446E-02 -.322E-02

time =  .34000E+01 -.542E+01 -.839E+01 -.158E+02 -.817E+02 -.144E+03 -.817E+02
                -.158E+02 -.839E+01 -.542E+01 -.327E-02 -.452E-02 -.904E-02
                -.169E-01 -.215E-01 -.169E-01 -.904E-02 -.452E-02 -.327E-02

time =  .34500E+01 -.550E+01 -.851E+01 -.160E+02 -.829E+02 -.146E+03 -.829E+02
                -.160E+02 -.851E+01 -.550E+01 -.332E-02 -.459E-02 -.918E-02
                -.171E-01 -.218E-01 -.171E-01 -.918E-02 -.459E-02 -.332E-02

time =  .35000E+01 -.558E+01 -.864E+01 -.163E+02 -.841E+02 -.148E+03 -.841E+02
                -.163E+02 -.864E+01 -.558E+01 -.337E-02 -.466E-02 -.931E-02
                -.174E-01 -.221E-01 -.174E-01 -.931E-02 -.466E-02 -.337E-02

time =  .35500E+01 -.566E+01 -.876E+01 -.165E+02 -.853E+02 -.150E+03 -.853E+02
                -.165E+02 -.876E+01 -.566E+01 -.342E-02 -.473E-02 -.945E-02
                -.176E-01 -.224E-01 -.176E-01 -.945E-02 -.473E-02 -.342E-02

time =  .36000E+01 -.574E+01 -.889E+01 -.167E+02 -.865E+02 -.152E+03 -.865E+02
                -.167E+02 -.889E+01 -.574E+01 -.347E-02 -.479E-02 -.958E-02
                -.179E-01 -.227E-01 -.179E-01 -.958E-02 -.479E-02 -.347E-02

time =  .36500E+01 -.582E+01 -.901E+01 -.170E+02 -.877E+02 -.154E+03 -.877E+02
                -.170E+02 -.901E+01 -.582E+01 -.352E-02 -.486E-02 -.972E-02
                -.181E-01 -.231E-01 -.181E-01 -.972E-02 -.486E-02 -.352E-02

time =  .37000E+01 -.590E+01 -.913E+01 -.172E+02 -.889E+02 -.156E+03 -.889E+02
                -.172E+02 -.913E+01 -.590E+01 -.356E-02 -.493E-02 -.985E-02
                -.184E-01 -.234E-01 -.184E-01 -.985E-02 -.493E-02 -.356E-02

time =  .37500E+01 -.598E+01 -.926E+01 -.174E+02 -.901E+02 -.158E+03 -.901E+02
                -.174E+02 -.926E+01 -.598E+01 -.361E-02 -.499E-02 -.999E-02
                -.186E-01 -.237E-01 -.186E-01 -.999E-02 -.499E-02 -.361E-02

time =  .38000E+01 -.606E+01 -.938E+01 -.177E+02 -.914E+02 -.160E+03 -.914E+02
                -.177E+02 -.938E+01 -.606E+01 -.366E-02 -.506E-02 -.101E-01
                -.189E-01 -.240E-01 -.189E-01 -.101E-01 -.506E-02 -.366E-02

time =  .38500E+01 -.614E+01 -.951E+01 -.179E+02 -.926E+02 -.163E+03 -.926E+02
                -.179E+02 -.951E+01 -.614E+01 -.371E-02 -.513E-02 -.103E-01
                -.191E-01 -.243E-01 -.191E-01 -.103E-01 -.513E-02 -.371E-02

time =  .39000E+01 -.622E+01 -.963E+01 -.181E+02 -.938E+02 -.165E+03 -.938E+02
                -.181E+02 -.963E+01 -.622E+01 -.376E-02 -.520E-02 -.104E-01
                -.194E-01 -.247E-01 -.194E-01 -.104E-01 -.520E-02 -.376E-02

time =  .39500E+01 -.630E+01 -.975E+01 -.184E+02 -.950E+02 -.167E+03 -.950E+02
                -.184E+02 -.975E+01 -.630E+01 -.381E-02 -.526E-02 -.105E-01
                -.196E-01 -.250E-01 -.196E-01 -.105E-01 -.526E-02 -.381E-02

time =  .40000E+01 -.638E+01 -.988E+01 -.186E+02 -.962E+02 -.169E+03 -.962E+02
                -.186E+02 -.988E+01 -.638E+01 -.386E-02 -.533E-02 -.107E-01
                -.199E-01 -.253E-01 -.199E-01 -.107E-01 -.533E-02 -.386E-02

time =  .40500E+01 -.646E+01 -.100E+02 -.188E+02 -.974E+02 -.171E+03 -.974E+02
                -.188E+02 -.100E+02 -.646E+01 -.391E-02 -.540E-02 -.108E-01
                -.201E-01 -.256E-01 -.201E-01 -.108E-01 -.540E-02 -.391E-02
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time =  .41000E+01 -.654E+01 -.101E+02 -.191E+02 -.986E+02 -.173E+03 -.986E+02
                   -.191E+02 -.101E+02 -.654E+01 -.395E-02 -.547E-02 -.109E-01
                   -.204E-01 -.259E-01 -.204E-01 -.109E-01 -.547E-02 -.395E-02

time =  .41500E+01 -.662E+01 -.102E+02 -.193E+02 -.998E+02 -.175E+03 -.998E+02
                   -.193E+02 -.102E+02 -.662E+01 -.400E-02 -.553E-02 -.111E-01
                   -.206E-01 -.263E-01 -.206E-01 -.111E-01 -.553E-02 -.400E-02

time =  .42000E+01 -.670E+01 -.104E+02 -.195E+02 -.101E+03 -.177E+03 -.101E+03
                   -.195E+02 -.104E+02 -.670E+01 -.405E-02 -.560E-02 -.112E-01
                   -.209E-01 -.266E-01 -.209E-01 -.112E-01 -.560E-02 -.405E-02

time =  .42500E+01 -.678E+01 -.105E+02 -.198E+02 -.102E+03 -.180E+03 -.102E+03
                   -.198E+02 -.105E+02 -.678E+01 -.410E-02 -.567E-02 -.113E-01
                   -.211E-01 -.269E-01 -.211E-01 -.113E-01 -.567E-02 -.410E-02

time =  .43000E+01 -.686E+01 -.106E+02 -.200E+02 -.103E+03 -.182E+03 -.103E+03
                   -.200E+02 -.106E+02 -.686E+01 -.415E-02 -.574E-02 -.115E-01
                   -.214E-01 -.272E-01 -.214E-01 -.115E-01 -.574E-02 -.415E-02

time =  .43500E+01 -.695E+01 -.107E+02 -.202E+02 -.105E+03 -.184E+03 -.105E+03
                   -.202E+02 -.107E+02 -.695E+01 -.420E-02 -.580E-02 -.116E-01
                   -.216E-01 -.275E-01 -.216E-01 -.116E-01 -.580E-02 -.420E-02

time =  .44000E+01 -.703E+01 -.109E+02 -.205E+02 -.106E+03 -.186E+03 -.106E+03
                   -.205E+02 -.109E+02 -.703E+01 -.425E-02 -.587E-02 -.117E-01
                   -.219E-01 -.279E-01 -.219E-01 -.117E-01 -.587E-02 -.425E-02

time =  .44500E+01 -.711E+01 -.110E+02 -.207E+02 -.107E+03 -.188E+03 -.107E+03
                   -.207E+02 -.110E+02 -.711E+01 -.430E-02 -.594E-02 -.119E-01
                   -.222E-01 -.282E-01 -.222E-01 -.119E-01 -.594E-02 -.430E-02

time =  .45000E+01 -.719E+01 -.111E+02 -.209E+02 -.108E+03 -.190E+03 -.108E+03
                   -.209E+02 -.111E+02 -.719E+01 -.434E-02 -.601E-02 -.120E-01
                   -.224E-01 -.285E-01 -.224E-01 -.120E-01 -.601E-02 -.434E-02

time =  .45500E+01 -.727E+01 -.112E+02 -.212E+02 -.109E+03 -.192E+03 -.109E+03
                   -.212E+02 -.112E+02 -.727E+01 -.439E-02 -.607E-02 -.121E-01
                   -.227E-01 -.288E-01 -.227E-01 -.121E-01 -.607E-02 -.439E-02

time =  .46000E+01 -.735E+01 -.114E+02 -.214E+02 -.111E+03 -.195E+03 -.111E+03
                   -.214E+02 -.114E+02 -.735E+01 -.444E-02 -.614E-02 -.123E-01
                   -.229E-01 -.291E-01 -.229E-01 -.123E-01 -.614E-02 -.444E-02

time =  .46500E+01 -.743E+01 -.115E+02 -.216E+02 -.112E+03 -.197E+03 -.112E+03
                   -.216E+02 -.115E+02 -.743E+01 -.449E-02 -.621E-02 -.124E-01
                   -.232E-01 -.295E-01 -.232E-01 -.124E-01 -.621E-02 -.449E-02

time =  .47000E+01 -.751E+01 -.116E+02 -.219E+02 -.113E+03 -.199E+03 -.113E+03
                   -.219E+02 -.116E+02 -.751E+01 -.454E-02 -.627E-02 -.125E-01
                   -.234E-01 -.298E-01 -.234E-01 -.125E-01 -.627E-02 -.454E-02

time =  .47500E+01 -.759E+01 -.117E+02 -.221E+02 -.114E+03 -.201E+03 -.114E+03
                   -.221E+02 -.117E+02 -.759E+01 -.459E-02 -.634E-02 -.127E-01
                   -.237E-01 -.301E-01 -.237E-01 -.127E-01 -.634E-02 -.459E-02

time =  .48000E+01 -.767E+01 -.119E+02 -.223E+02 -.115E+03 -.203E+03 -.115E+03
                   -.223E+02 -.119E+02 -.767E+01 -.464E-02 -.641E-02 -.128E-01
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                -.239E-01 -.304E-01 -.239E-01 -.128E-01 -.641E-02 -.464E-02

time =  .48500E+01 -.775E+01 -.120E+02 -.226E+02 -.117E+03 -.205E+03 -.117E+03
                -.226E+02 -.120E+02 -.775E+01 -.468E-02 -.648E-02 -.129E-01
                -.242E-01 -.307E-01 -.242E-01 -.129E-01 -.648E-02 -.468E-02

time =  .49000E+01 -.783E+01 -.121E+02 -.228E+02 -.118E+03 -.207E+03 -.118E+03
                -.228E+02 -.121E+02 -.783E+01 -.473E-02 -.654E-02 -.131E-01
                -.244E-01 -.311E-01 -.244E-01 -.131E-01 -.654E-02 -.473E-02

time =  .49500E+01 -.791E+01 -.122E+02 -.230E+02 -.119E+03 -.209E+03 -.119E+03
                -.230E+02 -.122E+02 -.791E+01 -.478E-02 -.661E-02 -.132E-01
                -.247E-01 -.314E-01 -.247E-01 -.132E-01 -.661E-02 -.478E-02

time =  .50000E+01 -.799E+01 -.123E+02 -.232E+02 -.120E+03 -.212E+03 -.120E+03
                -.232E+02 -.123E+02 -.799E+01 -.483E-02 -.668E-02 -.133E-01
                -.249E-01 -.317E-01 -.249E-01 -.133E-01 -.668E-02 -.483E-02

time =  .50500E+01 -.807E+01 -.125E+02 -.235E+02 -.121E+03 -.214E+03 -.121E+03
                -.235E+02 -.125E+02 -.807E+01 -.488E-02 -.674E-02 -.135E-01
                -.252E-01 -.320E-01 -.252E-01 -.135E-01 -.674E-02 -.488E-02

time =  .51000E+01 -.814E+01 -.126E+02 -.237E+02 -.123E+03 -.216E+03 -.123E+03
                -.237E+02 -.126E+02 -.814E+01 -.493E-02 -.681E-02 -.136E-01
                -.254E-01 -.323E-01 -.254E-01 -.136E-01 -.681E-02 -.493E-02

time =  .51500E+01 -.822E+01 -.127E+02 -.239E+02 -.124E+03 -.218E+03 -.124E+03
                -.239E+02 -.127E+02 -.822E+01 -.498E-02 -.688E-02 -.138E-01
                -.257E-01 -.327E-01 -.257E-01 -.138E-01 -.688E-02 -.498E-02

time =  .52000E+01 -.830E+01 -.128E+02 -.242E+02 -.125E+03 -.220E+03 -.125E+03
                -.242E+02 -.128E+02 -.830E+01 -.502E-02 -.695E-02 -.139E-01
                -.259E-01 -.330E-01 -.259E-01 -.139E-01 -.695E-02 -.502E-02

time =  .52500E+01 -.838E+01 -.130E+02 -.244E+02 -.126E+03 -.222E+03 -.126E+03
                -.244E+02 -.130E+02 -.838E+01 -.507E-02 -.701E-02 -.140E-01
                -.262E-01 -.333E-01 -.262E-01 -.140E-01 -.701E-02 -.507E-02

time =  .53000E+01 -.846E+01 -.131E+02 -.246E+02 -.128E+03 -.224E+03 -.128E+03
                -.246E+02 -.131E+02 -.846E+01 -.512E-02 -.708E-02 -.142E-01
                -.264E-01 -.336E-01 -.264E-01 -.142E-01 -.708E-02 -.512E-02

time =  .53500E+01 -.854E+01 -.132E+02 -.249E+02 -.129E+03 -.226E+03 -.129E+03
                -.249E+02 -.132E+02 -.854E+01 -.517E-02 -.715E-02 -.143E-01
                -.267E-01 -.340E-01 -.267E-01 -.143E-01 -.715E-02 -.517E-02

time =  .54000E+01 -.862E+01 -.133E+02 -.251E+02 -.130E+03 -.229E+03 -.130E+03
                -.251E+02 -.133E+02 -.862E+01 -.522E-02 -.721E-02 -.144E-01
                -.269E-01 -.343E-01 -.269E-01 -.144E-01 -.721E-02 -.522E-02

time =  .54500E+01 -.870E+01 -.135E+02 -.253E+02 -.131E+03 -.231E+03 -.131E+03
                -.253E+02 -.135E+02 -.870E+01 -.527E-02 -.728E-02 -.146E-01
                -.272E-01 -.346E-01 -.272E-01 -.146E-01 -.728E-02 -.527E-02

time =  .55000E+01 -.878E+01 -.136E+02 -.256E+02 -.132E+03 -.233E+03 -.132E+03
                -.256E+02 -.136E+02 -.878E+01 -.531E-02 -.735E-02 -.147E-01
                -.274E-01 -.349E-01 -.274E-01 -.147E-01 -.735E-02 -.531E-02
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time =  .55500E+01 -.886E+01 -.137E+02 -.258E+02 -.134E+03 -.235E+03 -.134E+03
                   -.258E+02 -.137E+02 -.886E+01 -.536E-02 -.742E-02 -.148E-01
                   -.277E-01 -.352E-01 -.277E-01 -.148E-01 -.742E-02 -.536E-02

time =  .56000E+01 -.894E+01 -.138E+02 -.260E+02 -.135E+03 -.237E+03 -.135E+03
                   -.260E+02 -.138E+02 -.894E+01 -.541E-02 -.748E-02 -.150E-01
                   -.279E-01 -.356E-01 -.279E-01 -.150E-01 -.748E-02 -.541E-02

time =  .56500E+01 -.902E+01 -.139E+02 -.262E+02 -.136E+03 -.239E+03 -.136E+03
                   -.262E+02 -.139E+02 -.902E+01 -.546E-02 -.755E-02 -.151E-01
                   -.282E-01 -.359E-01 -.282E-01 -.151E-01 -.755E-02 -.546E-02

time =  .57000E+01 -.910E+01 -.141E+02 -.265E+02 -.137E+03 -.241E+03 -.137E+03
                   -.265E+02 -.141E+02 -.910E+01 -.551E-02 -.762E-02 -.152E-01
                   -.284E-01 -.362E-01 -.284E-01 -.152E-01 -.762E-02 -.551E-02

time =  .57500E+01 -.918E+01 -.142E+02 -.267E+02 -.138E+03 -.243E+03 -.138E+03
                   -.267E+02 -.142E+02 -.918E+01 -.556E-02 -.768E-02 -.154E-01
                   -.287E-01 -.365E-01 -.287E-01 -.154E-01 -.768E-02 -.556E-02

time =  .58000E+01 -.926E+01 -.143E+02 -.269E+02 -.140E+03 -.246E+03 -.140E+03
                   -.269E+02 -.143E+02 -.926E+01 -.560E-02 -.775E-02 -.155E-01
                   -.289E-01 -.368E-01 -.289E-01 -.155E-01 -.775E-02 -.560E-02

time =  .58500E+01 -.934E+01 -.144E+02 -.272E+02 -.141E+03 -.248E+03 -.141E+03
                   -.272E+02 -.144E+02 -.934E+01 -.565E-02 -.782E-02 -.156E-01
                   -.292E-01 -.372E-01 -.292E-01 -.156E-01 -.782E-02 -.565E-02

time =  .59000E+01 -.942E+01 -.146E+02 -.274E+02 -.142E+03 -.250E+03 -.142E+03
                   -.274E+02 -.146E+02 -.942E+01 -.570E-02 -.789E-02 -.158E-01
                   -.294E-01 -.375E-01 -.294E-01 -.158E-01 -.789E-02 -.570E-02

time =  .59500E+01 -.950E+01 -.147E+02 -.276E+02 -.143E+03 -.252E+03 -.143E+03
                   -.276E+02 -.147E+02 -.950E+01 -.575E-02 -.795E-02 -.159E-01
                   -.297E-01 -.378E-01 -.297E-01 -.159E-01 -.795E-02 -.575E-02

time =  .60000E+01 -.958E+01 -.148E+02 -.279E+02 -.144E+03 -.254E+03 -.144E+03
                   -.279E+02 -.148E+02 -.958E+01 -.580E-02 -.802E-02 -.160E-01
                   -.299E-01 -.381E-01 -.299E-01 -.160E-01 -.802E-02 -.580E-02

time =  .60500E+01 -.966E+01 -.149E+02 -.281E+02 -.146E+03 -.256E+03 -.146E+03
                   -.281E+02 -.149E+02 -.966E+01 -.585E-02 -.809E-02 -.162E-01
                   -.302E-01 -.385E-01 -.302E-01 -.162E-01 -.809E-02 -.585E-02

time =  .61000E+01 -.974E+01 -.150E+02 -.283E+02 -.147E+03 -.258E+03 -.147E+03
                   -.283E+02 -.150E+02 -.974E+01 -.589E-02 -.815E-02 -.163E-01
                   -.305E-01 -.388E-01 -.305E-01 -.163E-01 -.815E-02 -.589E-02

time =  .61500E+01 -.982E+01 -.152E+02 -.286E+02 -.148E+03 -.261E+03 -.148E+03
                   -.286E+02 -.152E+02 -.982E+01 -.594E-02 -.822E-02 -.164E-01
                   -.307E-01 -.391E-01 -.307E-01 -.164E-01 -.822E-02 -.594E-02

time =  .62000E+01 -.989E+01 -.153E+02 -.288E+02 -.149E+03 -.263E+03 -.149E+03
                   -.288E+02 -.153E+02 -.989E+01 -.599E-02 -.829E-02 -.166E-01
                   -.310E-01 -.394E-01 -.310E-01 -.166E-01 -.829E-02 -.599E-02

time =  .62500E+01 -.997E+01 -.154E+02 -.290E+02 -.150E+03 -.265E+03 -.150E+03
                   -.290E+02 -.154E+02 -.997E+01 -.604E-02 -.835E-02 -.167E-01
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                -.312E-01 -.397E-01 -.312E-01 -.167E-01 -.835E-02 -.604E-02

time =  .63000E+01 -.101E+02 -.155E+02 -.292E+02 -.152E+03 -.267E+03 -.152E+03
                -.292E+02 -.155E+02 -.101E+02 -.609E-02 -.842E-02 -.168E-01
                -.315E-01 -.401E-01 -.315E-01 -.168E-01 -.842E-02 -.609E-02

time =  .63500E+01 -.101E+02 -.157E+02 -.295E+02 -.153E+03 -.269E+03 -.153E+03
                -.295E+02 -.157E+02 -.101E+02 -.614E-02 -.849E-02 -.170E-01
                -.317E-01 -.404E-01 -.317E-01 -.170E-01 -.849E-02 -.614E-02

time =  .64000E+01 -.102E+02 -.158E+02 -.297E+02 -.154E+03 -.271E+03 -.154E+03
                -.297E+02 -.158E+02 -.102E+02 -.618E-02 -.856E-02 -.171E-01
                -.320E-01 -.407E-01 -.320E-01 -.171E-01 -.856E-02 -.618E-02

time =  .64500E+01 -.103E+02 -.159E+02 -.299E+02 -.155E+03 -.273E+03 -.155E+03
                -.299E+02 -.159E+02 -.103E+02 -.623E-02 -.862E-02 -.172E-01
                -.322E-01 -.410E-01 -.322E-01 -.172E-01 -.862E-02 -.623E-02

time =  .65000E+01 -.104E+02 -.160E+02 -.302E+02 -.156E+03 -.275E+03 -.156E+03
                -.302E+02 -.160E+02 -.104E+02 -.628E-02 -.869E-02 -.174E-01
                -.325E-01 -.413E-01 -.325E-01 -.174E-01 -.869E-02 -.628E-02

time =  .65500E+01 -.104E+02 -.161E+02 -.304E+02 -.158E+03 -.278E+03 -.158E+03
                -.304E+02 -.161E+02 -.104E+02 -.633E-02 -.876E-02 -.175E-01
                -.327E-01 -.417E-01 -.327E-01 -.175E-01 -.876E-02 -.633E-02

time =  .66000E+01 -.105E+02 -.163E+02 -.306E+02 -.159E+03 -.280E+03 -.159E+03
                -.306E+02 -.163E+02 -.105E+02 -.638E-02 -.882E-02 -.176E-01
                -.330E-01 -.420E-01 -.330E-01 -.176E-01 -.882E-02 -.638E-02

time =  .66500E+01 -.106E+02 -.164E+02 -.309E+02 -.160E+03 -.282E+03 -.160E+03
                -.309E+02 -.164E+02 -.106E+02 -.643E-02 -.889E-02 -.178E-01
                -.332E-01 -.423E-01 -.332E-01 -.178E-01 -.889E-02 -.643E-02

time =  .67000E+01 -.107E+02 -.165E+02 -.311E+02 -.161E+03 -.284E+03 -.161E+03
                -.311E+02 -.165E+02 -.107E+02 -.647E-02 -.896E-02 -.179E-01
                -.335E-01 -.426E-01 -.335E-01 -.179E-01 -.896E-02 -.647E-02

time =  .67500E+01 -.108E+02 -.166E+02 -.313E+02 -.162E+03 -.286E+03 -.162E+03
                -.313E+02 -.166E+02 -.108E+02 -.652E-02 -.902E-02 -.180E-01
                -.337E-01 -.430E-01 -.337E-01 -.180E-01 -.902E-02 -.652E-02

time =  .68000E+01 -.108E+02 -.167E+02 -.315E+02 -.164E+03 -.288E+03 -.164E+03
                -.315E+02 -.167E+02 -.108E+02 -.657E-02 -.909E-02 -.182E-01
                -.340E-01 -.433E-01 -.340E-01 -.182E-01 -.909E-02 -.657E-02

time =  .68500E+01 -.109E+02 -.169E+02 -.318E+02 -.165E+03 -.290E+03 -.165E+03
                -.318E+02 -.169E+02 -.109E+02 -.662E-02 -.916E-02 -.183E-01
                -.342E-01 -.436E-01 -.342E-01 -.183E-01 -.916E-02 -.662E-02

time =  .69000E+01 -.110E+02 -.170E+02 -.320E+02 -.166E+03 -.293E+03 -.166E+03
                -.320E+02 -.170E+02 -.110E+02 -.667E-02 -.922E-02 -.184E-01
                -.345E-01 -.439E-01 -.345E-01 -.184E-01 -.922E-02 -.667E-02

time =  .69500E+01 -.111E+02 -.171E+02 -.322E+02 -.167E+03 -.295E+03 -.167E+03
                -.322E+02 -.171E+02 -.111E+02 -.671E-02 -.929E-02 -.186E-01
                -.347E-01 -.442E-01 -.347E-01 -.186E-01 -.929E-02 -.671E-02
```

```
time =  .70000E+01 -.112E+02 -.172E+02 -.325E+02 -.168E+03 -.297E+03 -.168E+03
                   -.325E+02 -.172E+02 -.112E+02 -.676E-02 -.936E-02 -.187E-01
                   -.350E-01 -.446E-01 -.350E-01 -.187E-01 -.936E-02 -.676E-02

time =  .70500E+01 -.112E+02 -.174E+02 -.327E+02 -.170E+03 -.299E+03 -.170E+03
                   -.327E+02 -.174E+02 -.112E+02 -.681E-02 -.942E-02 -.189E-01
                   -.352E-01 -.449E-01 -.352E-01 -.189E-01 -.942E-02 -.681E-02

time =  .71000E+01 -.113E+02 -.175E+02 -.329E+02 -.171E+03 -.301E+03 -.171E+03
                   -.329E+02 -.175E+02 -.113E+02 -.686E-02 -.949E-02 -.190E-01
                   -.355E-01 -.452E-01 -.355E-01 -.190E-01 -.949E-02 -.686E-02

time =  .71500E+01 -.114E+02 -.176E+02 -.331E+02 -.172E+03 -.303E+03 -.172E+03
                   -.331E+02 -.176E+02 -.114E+02 -.691E-02 -.956E-02 -.191E-01
                   -.357E-01 -.455E-01 -.357E-01 -.191E-01 -.956E-02 -.691E-02

time =  .72000E+01 -.115E+02 -.177E+02 -.334E+02 -.173E+03 -.305E+03 -.173E+03
                   -.334E+02 -.177E+02 -.115E+02 -.695E-02 -.963E-02 -.193E-01
                   -.360E-01 -.459E-01 -.360E-01 -.193E-01 -.963E-02 -.695E-02

time =  .72500E+01 -.116E+02 -.178E+02 -.336E+02 -.174E+03 -.308E+03 -.174E+03
                   -.336E+02 -.178E+02 -.116E+02 -.700E-02 -.969E-02 -.194E-01
                   -.362E-01 -.462E-01 -.362E-01 -.194E-01 -.969E-02 -.700E-02

time =  .73000E+01 -.116E+02 -.180E+02 -.338E+02 -.176E+03 -.310E+03 -.176E+03
                   -.338E+02 -.180E+02 -.116E+02 -.705E-02 -.976E-02 -.195E-01
                   -.365E-01 -.465E-01 -.365E-01 -.195E-01 -.976E-02 -.705E-02

time =  .73500E+01 -.117E+02 -.181E+02 -.341E+02 -.177E+03 -.312E+03 -.177E+03
                   -.341E+02 -.181E+02 -.117E+02 -.710E-02 -.983E-02 -.197E-01
                   -.367E-01 -.468E-01 -.367E-01 -.197E-01 -.983E-02 -.710E-02

time =  .74000E+01 -.118E+02 -.182E+02 -.343E+02 -.178E+03 -.314E+03 -.178E+03
                   -.343E+02 -.182E+02 -.118E+02 -.715E-02 -.989E-02 -.198E-01
                   -.370E-01 -.472E-01 -.370E-01 -.198E-01 -.989E-02 -.715E-02

time =  .74500E+01 -.119E+02 -.183E+02 -.345E+02 -.179E+03 -.316E+03 -.179E+03
                   -.345E+02 -.183E+02 -.119E+02 -.719E-02 -.996E-02 -.199E-01
                   -.373E-01 -.475E-01 -.373E-01 -.199E-01 -.996E-02 -.719E-02

time =  .75000E+01 -.119E+02 -.184E+02 -.347E+02 -.180E+03 -.318E+03 -.180E+03
                   -.347E+02 -.184E+02 -.119E+02 -.724E-02 -.100E-01 -.201E-01
                   -.375E-01 -.478E-01 -.375E-01 -.201E-01 -.100E-01 -.724E-02

time =  .75500E+01 -.120E+02 -.185E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.185E+02 -.120E+02 -.729E-02 -.101E-01 -.201E-01
                   -.376E-01 -.479E-01 -.376E-01 -.201E-01 -.101E-01 -.729E-02

time =  .76000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.731E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.731E-02

time =  .76500E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.731E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.731E-02

time =  .77000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
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                    -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .77500E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                    -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                    -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .78000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                    -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                    -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .78500E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                    -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                    -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .79000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                    -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                    -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .79500E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                    -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                    -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .80000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                    -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                    -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .80500E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                    -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                    -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .81000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                    -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                    -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .81500E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                    -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                    -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .82000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                    -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                    -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .82500E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                    -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                    -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .83000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                    -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                    -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .83500E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                    -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                    -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .84000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                    -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                    -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02
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time =  .84500E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .85000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .85500E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .86000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .86500E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .87000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .87500E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .88000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .88500E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .89000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .89500E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .90000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .90500E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02

time =  .91000E+01 -.121E+02 -.186E+02 -.349E+02 -.181E+03 -.319E+03 -.181E+03
                   -.349E+02 -.186E+02 -.121E+02 -.732E-02 -.101E-01 -.202E-01
                   -.377E-01 -.480E-01 -.377E-01 -.202E-01 -.101E-01 -.732E-02
```

Input and output of ANSYS

LIST ALL SELECTED ELEMENTS. (LIST NODES)

ELEM	MAT	TYP	REL	ESY	NODES							
1	1	1	1	0	2	20	27	6	55	57	81	80
2	1	1	1	0	20	21	28	27	57	58	85	81
3	1	1	1	0	21	22	29	28	58	59	89	85
4	1	1	1	0	22	23	30	29	59	60	93	89
5	1	1	1	0	23	24	31	30	60	61	97	93
6	1	1	1	0	24	25	32	31	61	62	101	97
7	1	1	1	0	25	26	33	32	62	63	105	101
8	1	1	1	0	26	15	16	33	63	56	65	105
9	1	1	1	0	6	27	34	5	80	81	82	79
10	1	1	1	0	27	28	35	34	81	85	86	82
11	1	1	1	0	28	29	36	35	85	89	90	86
12	1	1	1	0	29	30	37	36	89	93	94	90
13	1	1	1	0	30	31	38	37	93	97	98	94
14	1	1	1	0	31	32	39	38	97	101	102	98
15	1	1	1	0	32	33	40	39	101	105	106	102
16	1	1	1	0	33	16	17	40	105	65	66	106
17	1	1	1	0	5	34	41	4	79	82	83	78
18	1	1	1	0	34	35	42	41	82	86	87	83
19	1	1	1	0	35	36	43	42	86	90	91	87
20	1	1	1	0	36	37	44	43	90	94	95	91

ELEM	MAT	TYP	REL	ESY	NODES							
21	1	1	1	0	37	38	45	44	94	98	99	95
22	1	1	1	0	38	39	46	45	98	102	103	99
23	1	1	1	0	39	40	47	46	102	106	107	103
24	1	1	1	0	40	17	18	47	106	66	67	107
25	1	1	1	0	4	41	48	3	78	83	84	77
26	1	1	1	0	41	42	49	48	83	87	88	84
27	1	1	1	0	42	43	50	49	87	91	92	88
28	1	1	1	0	43	44	51	50	91	95	96	92
29	1	1	1	0	44	45	52	51	95	99	100	96
30	1	1	1	0	45	46	53	52	99	103	104	100
31	1	1	1	0	46	47	54	53	103	107	108	104
32	1	1	1	0	47	18	19	54	107	67	68	108
33	1	1	1	0	3	48	14	1	77	84	76	69
34	1	1	1	0	48	49	13	14	84	88	75	76
35	1	1	1	0	49	50	12	13	88	92	74	75
36	1	1	1	0	50	51	11	12	92	96	73	74
37	1	1	1	0	51	52	10	11	96	100	72	73
38	1	1	1	0	52	53	9	10	100	104	71	72
39	1	1	1	0	53	54	8	9	104	108	70	71
40	1	1	1	0	54	19	7	8	108	68	64	70

PRINT DOF NODAL SOLUTION PER NODE

***** POST1 NODAL DEGREE OF FREEDOM LISTING *****

LOAD STEP= 1 SUBSTEP= 13
TIME= 1.0000 LOAD CASE= 0

THE FOLLOWING DEGREE OF FREEDOM RESULTS ARE IN GLOBAL COORDINATES

NODE	UX	UY	UZ
1	0.	-0.77024E-02	0.66849E-03
2	0.	0.	0.
3	0.	-0.71556E-02	-0.77541E-04
4	0.	-0.69462E-02	-0.68457E-03
5	0.	-0.61150E-02	-0.87618E-03
6	0.	-0.35823E-02	-0.13101E-02
7	0.	-0.77024E-02	0.66849E-03
8	-0.45254E-02	-0.10705E-01	0.73044E-03
9	-0.89664E-02	-0.19743E-01	0.59520E-03
10	-0.87150E-02	-0.49319E-01	-0.33376E-02
11	0.86736E-17	-0.72858E-01	-0.70733E-02
12	0.87150E-02	-0.49319E-01	-0.33376E-02
13	0.89664E-02	-0.19743E-01	0.59520E-03
14	0.45254E-02	-0.10705E-01	0.73044E-03
15	0.	0.	0.
16	0.	-0.35823E-02	-0.13101E-02
17	0.	-0.61150E-02	-0.87618E-03
18	0.	-0.69462E-02	-0.68457E-03
19	0.	-0.71556E-02	-0.77541E-04
20	0.	0.	0.
21	0.	0.	0.
22	0.	0.	0.
23	0.	0.	0.
24	0.	0.	0.
25	0.	0.	0.
26	0.	0.	0.
27	-0.14668E-02	-0.41772E-02	-0.14085E-02
28	-0.20969E-02	-0.56431E-02	-0.16466E-02
29	-0.14923E-02	-0.71404E-02	-0.18881E-02
30	0.53126E-17	-0.77667E-02	-0.19900E-02
31	0.14923E-02	-0.71404E-02	-0.18881E-02
32	0.20969E-02	-0.56431E-02	-0.16466E-02
33	0.14668E-02	-0.41772E-02	-0.14085E-02
34	-0.24877E-02	-0.77225E-02	-0.96250E-03
35	-0.36022E-02	-0.11722E-01	-0.11924E-02
36	-0.26410E-02	-0.15947E-01	-0.14508E-02
37	0.73184E-17	-0.17779E-01	-0.15656E-02

***** POST1 NODAL DEGREE OF FREEDOM LISTING *****

LOAD STEP= 1 SUBSTEP= 13
TIME= 1.0000 LOAD CASE= 0

THE FOLLOWING DEGREE OF FREEDOM RESULTS ARE IN GLOBAL COORDINATES

NODE	UX	UY	UZ
38	0.26410E-02	-0.15947E-01	-0.14508E-02
39	0.36022E-02	-0.11722E-01	-0.11924E-02
40	0.24877E-02	-0.77225E-02	-0.96250E-03
41	-0.28924E-02	-0.95853E-02	-0.80621E-03
42	-0.48598E-02	-0.17180E-01	-0.12589E-02
43	-0.38009E-02	-0.26159E-01	-0.18441E-02
44	0.13769E-16	-0.30183E-01	-0.20982E-02
45	0.38009E-02	-0.26159E-01	-0.18441E-02
46	0.48598E-02	-0.17180E-01	-0.12589E-02

47	0.28924E-02	-0.95853E-02	-0.80621E-03
48	-0.60414E-03	-0.97766E-02	-0.30073E-03
49	-0.31111E-02	-0.20192E-01	-0.78422E-03
50	-0.46897E-02	-0.38116E-01	-0.22849E-02
51	0.78063E-17	-0.48246E-01	-0.35253E-02
52	0.46897E-02	-0.38116E-01	-0.22849E-02
53	0.31111E-02	-0.20192E-01	-0.78422E-03
54	0.60414E-03	-0.97766E-02	-0.30073E-03
55	0.	0.	0.
56	0.	0.	0.
57	0.	0.	0.
58	0.	0.	0.
59	0.	0.	0.
60	0.	0.	0.
61	0.	0.	0.
62	0.	0.	0.
63	0.	0.	0.
64	0.	-0.77024E-02	-0.66849E-03
65	0.	-0.35823E-02	0.13101E-02
66	0.	-0.61150E-02	0.87618E-03
67	0.	-0.69462E-02	0.68457E-03
68	0.	-0.71556E-02	0.77541E-04
69	0.	-0.77024E-02	-0.66849E-03
70	-0.45254E-02	-0.10705E-01	-0.73044E-03
71	-0.89664E-02	-0.19743E-01	-0.59520E-03
72	-0.87150E-02	-0.49319E-01	0.33376E-02
73	-0.26888E-16	-0.72858E-01	0.70733E-02
74	0.87150E-02	-0.49319E-01	0.33376E-02

***** POST1 NODAL DEGREE OF FREEDOM LISTING *****

LOAD STEP= 1 SUBSTEP= 13
TIME= 1.0000 LOAD CASE= 0

THE FOLLOWING DEGREE OF FREEDOM RESULTS ARE IN GLOBAL COORDINATES

NODE	UX	UY	UZ
75	0.89664E-02	-0.19743E-01	-0.59520E-03
76	0.45254E-02	-0.10705E-01	-0.73044E-03
77	0.	-0.71556E-02	0.77541E-04
78	0.	-0.69462E-02	0.68457E-03
79	0.	-0.61150E-02	0.87618E-03
80	0.	-0.35823E-02	0.13101E-02
81	-0.14668E-02	-0.41772E-02	0.14085E-02
82	-0.24877E-02	-0.77225E-02	0.96250E-03
83	-0.28924E-02	-0.95853E-02	0.80621E-03
84	-0.60414E-03	-0.97766E-02	0.30073E-03
85	-0.20969E-02	-0.56431E-02	0.16466E-02
86	-0.36022E-02	-0.11722E-01	0.11924E-02
87	-0.48598E-02	-0.17180E-01	0.12589E-02
88	-0.31111E-02	-0.20192E-01	0.78422E-03
89	-0.14923E-02	-0.71404E-02	0.18881E-02
90	-0.26410E-02	-0.15947E-01	0.14508E-02
91	-0.38009E-02	-0.26159E-01	0.18441E-02
92	-0.46897E-02	-0.38116E-01	0.22849E-02
93	0.54210E-19	-0.77667E-02	0.19900E-02
94	0.43368E-18	-0.17779E-01	0.15656E-02
95	-0.44452E-17	-0.30183E-01	0.20982E-02
96	-0.19299E-16	-0.48246E-01	0.35253E-02
97	0.14923E-02	-0.71404E-02	0.18881E-02
98	0.26410E-02	-0.15947E-01	0.14508E-02
99	0.38009E-02	-0.26159E-01	0.18441E-02
100	0.46897E-02	-0.38116E-01	0.22849E-02
101	0.20969E-02	-0.56431E-02	0.16466E-02
102	0.36022E-02	-0.11722E-01	0.11924E-02
103	0.48598E-02	-0.17180E-01	0.12589E-02

```
   104  0.31111E-02-0.20192E-01 0.78422E-03
   105  0.14668E-02-0.41772E-02 0.14085E-02
   106  0.24877E-02-0.77225E-02 0.96250E-03
   107  0.28924E-02-0.95853E-02 0.80621E-03
   108  0.60414E-03-0.97766E-02 0.30073E-03

 ***** POST1 NODAL DEGREE OF FREEDOM LISTING *****

 LOAD STEP=     1  SUBSTEP=    13
  TIME=    1.0000      LOAD CASE=   0

 THE FOLLOWING DEGREE OF FREEDOM RESULTS ARE IN GLOBAL COORDINATES

  NODE       UX          UY          UZ

MAXIMUM ABSOLUTE VALUES
NODE         71          11          11
VALUE  -0.89664E-02-0.72858E-01-0.70733E-02
```

PRINT S NODAL SOLUTION PER NODE

***** POST1 NODAL STRESS LISTING *****

LOAD STEP= 1 SUBSTEP= 13
TIME= 1.0000 LOAD CASE= 0

THE FOLLOWING X,Y,Z VALUES ARE IN GLOBAL COORDINATES

NODE	SX	SY	SZ	SXY	SYZ	SXZ
1	67.907	1.6389	0.80913	-1.4243	-0.82251	0.82251
2	-30.828	-67.839	-29.600	-5.9474	0.28385	0.28385
3	-11.801	-6.6786	-3.2178	-4.9984	-0.26479	-0.55772
4	-50.268	-19.944	-0.52625	-10.995	0.19740	0.95534E-01
5	-52.132	-39.374	-1.1663	-11.358	0.33515E-01	0.68350E-01
6	-39.191	-59.805	9.6057	-7.6226	0.12451	-0.15934
7	67.907	1.6389	0.80913	1.4243	-0.82251	-0.82251
8	67.331	-7.5996	-3.9938	3.9533	-0.91027E-01	-0.91353
9	12.978	-2.7079	-14.775	34.997	4.0102	3.0056
10	-127.26	-192.40	4.2306	60.983	0.91027E-01	7.1068
11	-213.72	-396.22	29.214	0.	-7.1978	0.
12	-127.26	-192.40	4.2306	-60.983	0.91027E-01	-7.1068
13	12.978	-2.7079	-14.775	-34.997	4.0102	-3.0056
14	67.331	-7.5996	-3.9938	-3.9533	-0.91027E-01	0.91353
15	-30.828	-67.839	-29.600	5.9474	0.28385	-0.28385
16	-39.191	-59.805	9.6057	7.6226	0.12451	0.15934
17	-52.132	-39.374	-1.1663	11.358	0.33515E-01	-0.68350E-01
18	-50.268	-19.944	-0.52625	10.995	0.19740	-0.95534E-01
19	-11.801	-6.6786	-3.2178	4.9984	-0.26479	0.55772
20	-34.322	-77.071	-33.418	-10.228	0.20141	0.48527
21	-42.809	-99.772	-42.774	-14.591	0.50496E-02	0.69173
22	-51.392	-122.93	-52.296	-10.392	-0.20141	0.49536
23	-54.984	-132.62	-56.281	0.	-0.29395	0.
24	-51.392	-122.93	-52.296	10.392	-0.20141	-0.49536
25	-42.809	-99.772	-42.774	14.591	0.50496E-02	-0.69173
26	-34.322	-77.071	-33.418	10.228	0.20141	-0.48527
27	-35.565	-71.106	10.255	-13.202	0.10353	-0.25723
28	-26.618	-99.227	11.644	-19.099	0.20538E-01	-0.33962
29	-17.545	-128.89	12.713	-13.838	-0.10353	-0.22625
30	-13.793	-141.74	13.041	0.	-0.16558	0.
31	-17.545	-128.89	12.713	13.838	-0.10353	0.22625
32	-26.618	-99.227	11.644	19.099	0.20538E-01	0.33962
33	-35.565	-71.106	10.255	13.202	0.10353	0.25723
34	-45.972	-53.351	-0.92170	-21.002	0.13801	0.20072
35	-31.372	-95.379	-2.2535	-32.629	0.93049E-01	0.39010
36	-15.875	-146.65	-5.2346	-24.967	-0.13801	0.31476
37	-8.8175	-169.87	-6.6392	0.	-0.21961	0.

***** POST1 NODAL STRESS LISTING *****

LOAD STEP= 1 SUBSTEP= 13
TIME= 1.0000 LOAD CASE= 0

THE FOLLOWING X,Y,Z VALUES ARE IN GLOBAL COORDINATES

NODE	SX	SY	SZ	SXY	SYZ	SXZ
38	-15.875	-146.65	-5.2346	24.967	-0.13801	-0.31476
39	-31.372	-95.379	-2.2535	32.629	0.93049E-01	-0.39010
40	-45.972	-53.351	-0.92170	21.002	0.13801	-0.20072
41	-48.064	-28.362	1.2585	-25.134	0.84185E-01	-0.90656E-01
42	-32.258	-74.541	5.7265	-49.684	0.71302	0.28610
43	-11.438	-171.64	0.39895	-45.955	-0.84185E-01	1.0352
44	-4.2220	-230.97	-7.6119	0.	-1.6234	0.
45	-11.438	-171.64	0.39895	45.955	-0.84185E-01	-1.0352
46	-32.258	-74.541	5.7265	49.684	0.71302	-0.28610

47	-48.064	-28.362	1.2585	25.134	0.84185E-01	0.90656E-01
48	-27.266	-10.666	-2.3577	-14.196	-0.96516E-01	-0.55223
49	-48.523	-25.578	1.2965	-46.357	2.6431	0.82036
50	-32.876	-189.33	1.8841	-60.121	0.96516E-01	2.1820
51	-11.437	-342.17	-0.32225	0.	-5.0213	0.
52	-32.876	-189.33	1.8841	60.121	0.96516E-01	-2.1820
53	-48.523	-25.578	1.2965	46.357	2.6431	-0.82036
54	-27.266	-10.666	-2.3577	14.196	-0.96516E-01	0.55223
55	-30.828	-67.839	-29.600	-5.9474	-0.28385	-0.28385
56	-30.828	-67.839	-29.600	5.9474	-0.28385	0.28385
57	-34.322	-77.071	-33.418	-10.228	-0.20141	-0.48527
58	-42.809	-99.772	-42.774	-14.591	-0.50496E-02	-0.69173
59	-51.392	-122.93	-52.296	-10.392	0.20141	-0.49536
60	-54.984	-132.62	-56.281	0.	0.29395	0.
61	-51.392	-122.93	-52.296	10.392	0.20141	0.49536
62	-42.809	-99.772	-42.774	14.591	-0.50496E-02	0.69173
63	-34.322	-77.071	-33.418	10.228	-0.20141	0.48527
64	67.907	1.6389	0.80913	1.4243	0.82251	0.82251
65	-39.191	-59.805	9.6057	7.6226	-0.12451	-0.15934
66	-52.132	-39.374	-1.1663	11.358	-0.33515E-01	0.68350E-01
67	-50.268	-19.944	-0.52625	10.995	-0.19740	0.95534E-01
68	-11.801	-6.6786	-3.2178	4.9984	0.26479	-0.55772
69	67.907	1.6389	0.80913	-1.4243	0.82251	-0.82251
70	67.331	-7.5996	-3.9938	3.9533	0.91027E-01	0.91353
71	12.978	-2.7079	-14.775	34.997	-4.0102	-3.0056
72	-127.26	-192.40	4.2306	60.983	-0.91027E-01	-7.1068
73	-213.72	-396.22	29.214	0.	7.1978	0.
74	-127.26	-192.40	4.2306	-60.983	-0.91027E-01	7.1068

***** POST1 NODAL STRESS LISTING *****

LOAD STEP= 1 SUBSTEP= 13
TIME= 1.0000 LOAD CASE= 0

THE FOLLOWING X,Y,Z VALUES ARE IN GLOBAL COORDINATES

NODE	SX	SY	SZ	SXY	SYZ	SXZ
75	12.978	-2.7079	-14.775	-34.997	-4.0102	3.0056
76	67.331	-7.5996	-3.9938	-3.9533	0.91027E-01	-0.91353
77	-11.801	-6.6786	-3.2178	-4.9984	0.26479	0.55772
78	-50.268	-19.944	-0.52625	-10.995	-0.19740	-0.95534E-01
79	-52.132	-39.374	-1.1663	-11.358	-0.33515E-01	-0.68350E-01
80	-39.191	-59.805	9.6057	-7.6226	-0.12451	0.15934
81	-35.565	-71.106	10.255	-13.202	-0.10353	0.25723
82	-45.972	-53.351	-0.92170	-21.002	-0.13801	-0.20072
83	-48.064	-28.362	1.2585	-25.134	-0.84185E-01	0.90656E-01
84	-27.266	-10.666	-2.3577	-14.196	0.96516E-01	0.55223
85	-26.618	-99.227	11.644	-19.099	-0.20538E-01	0.33962
86	-31.372	-95.379	-2.2535	-32.629	-0.93049E-01	-0.39010
87	-32.258	-74.541	5.7265	-49.684	-0.71302	-0.28610
88	-48.523	-25.578	1.2965	-46.357	-2.6431	-0.82036
89	-17.545	-128.89	12.713	-13.838	0.10353	0.22625
90	-15.875	-146.65	-5.2346	-24.967	0.13801	-0.31476
91	-11.438	-171.64	0.39895	-45.955	0.84185E-01	-1.0352
92	-32.876	-189.33	1.8841	-60.121	-0.96516E-01	-2.1820
93	-13.793	-141.74	13.041	0.	0.16558	0.
94	-8.8175	-169.87	-6.6392	0.	0.21961	0.
95	-4.2220	-230.97	-7.6119	0.	1.6234	0.
96	-11.437	-342.17	-0.32225	0.	5.0213	0.
97	-17.545	-128.89	12.713	13.838	0.10353	-0.22625
98	-15.875	-146.65	-5.2346	24.967	0.13801	0.31476
99	-11.438	-171.64	0.39895	45.955	0.84185E-01	1.0352
100	-32.876	-189.33	1.8841	60.121	-0.96516E-01	2.1820
101	-26.618	-99.227	11.644	19.099	-0.20538E-01	-0.33962
102	-31.372	-95.379	-2.2535	32.629	-0.93049E-01	0.39010
103	-32.258	-74.541	5.7265	49.684	-0.71302	0.28610

104	-48.523	-25.578	1.2965	46.357	-2.6431	0.82036
105	-35.565	-71.106	10.255	13.202	-0.10353	-0.25723
106	-45.972	-53.351	-0.92170	21.002	-0.13801	0.20072
107	-48.064	-28.362	1.2585	25.134	-0.84185E-01	-0.90656E-01
108	-27.266	-10.666	-2.3577	14.196	0.96516E-01	-0.55223

***** POST1 NODAL STRESS LISTING *****

LOAD STEP= 1 SUBSTEP= 13
TIME= 1.0000 LOAD CASE= 0

THE FOLLOWING X,Y,Z VALUES ARE IN GLOBAL COORDINATES

NODE	SX	SY	SZ	SXY	SYZ	SXZ
MINIMUM VALUES						
NODE	73	11	23	12	11	12
VALUE	-213.72	-396.22	-56.281	-60.983	-7.1978	-7.1068
MAXIMUM VALUES						
NODE	64	69	73	10	73	10
VALUE	67.907	1.6389	29.214	60.983	7.1978	7.1068

***** ESTIMATED BOUNDS CONSIDERING THE EFFECT OF DISCRETIZATION ERROR *****

MINIMUM VALUES						
NODE	73	11	72	12	11	72
VALUE	-321.78	-504.28	-103.82	-169.04	-115.25	-115.16
MAXIMUM VALUES						
NODE	70	9	73	10	73	10
VALUE	107.39	82.466	137.27	169.04	115.25	115.16

****

Problem 2.

A rectangular plate (or half space) of elastic-plastic material subjected to ramp loadings (Mises criterion and associated flow rule)

- **Problem description and loading functions**
- **Deflection and stress plots**
- **Input file for Soild3D**
- **Sample output of Soild3D**
- **Input and out of ANSYS program**

Problem description and loading functions

Straight Edge boundary on von Mises Material

According to the S3DP program, this problem has reached the steady state at time step number 95500 or 47.75 sec.

Input:

1. Geometry and finite element mesh are shown.

2. Material used in this problem is metal with the following properties:

$E = 15{,}000$ psi

$\upsilon = 0.3$

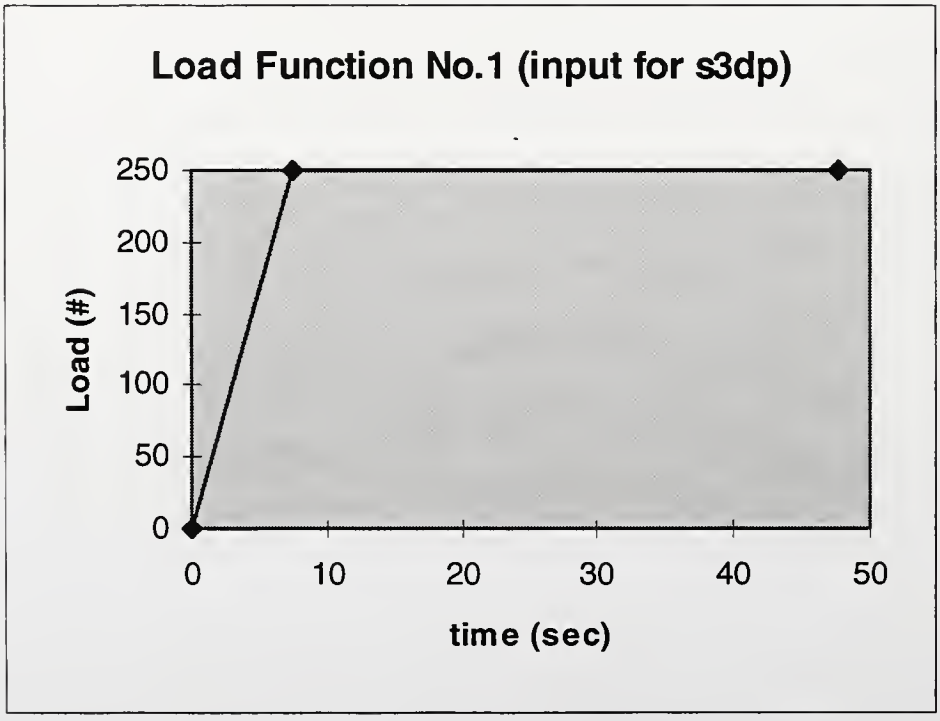
$\rho = 7.4\text{e-}2 \ \ lb - \sec^2 / in^4$

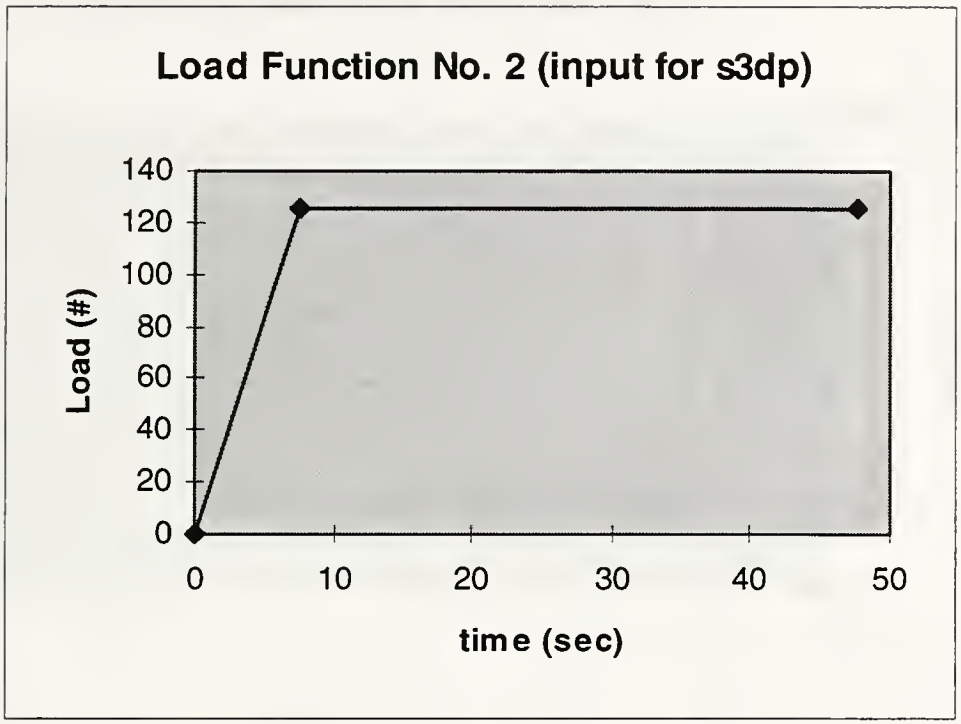
$E_t = 1{,}000$ psi

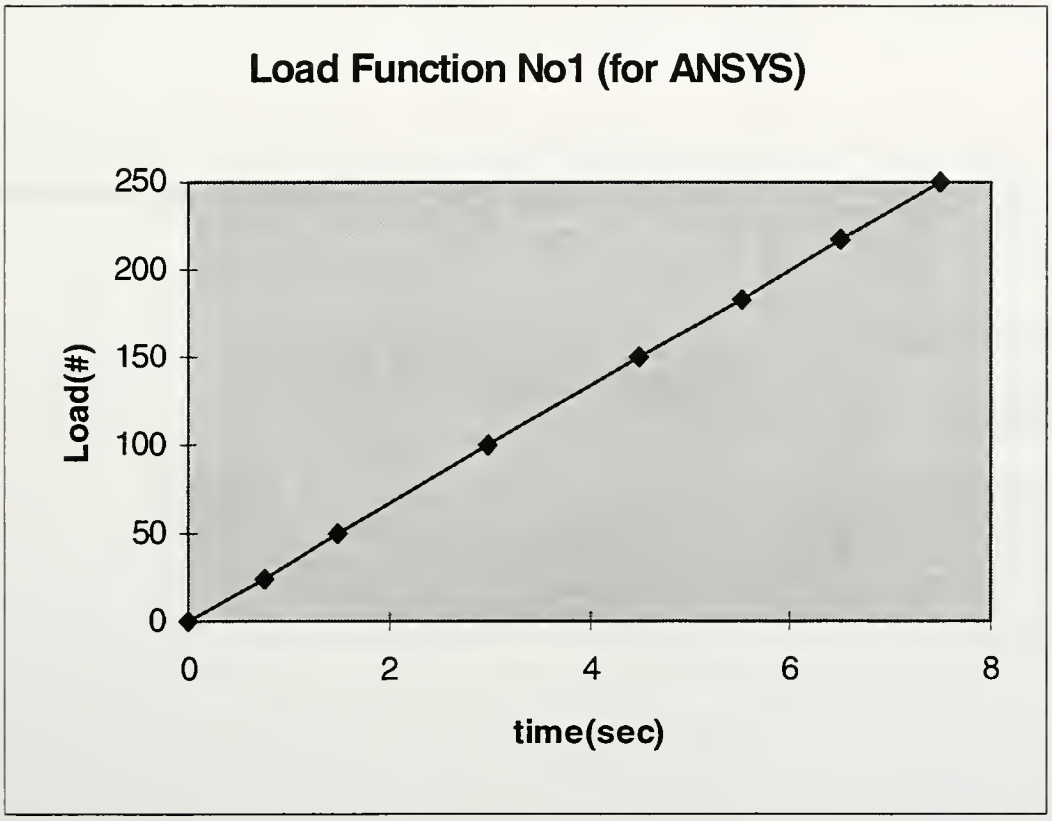
$\sigma_{yp} = 130$ psi (tensile strength)

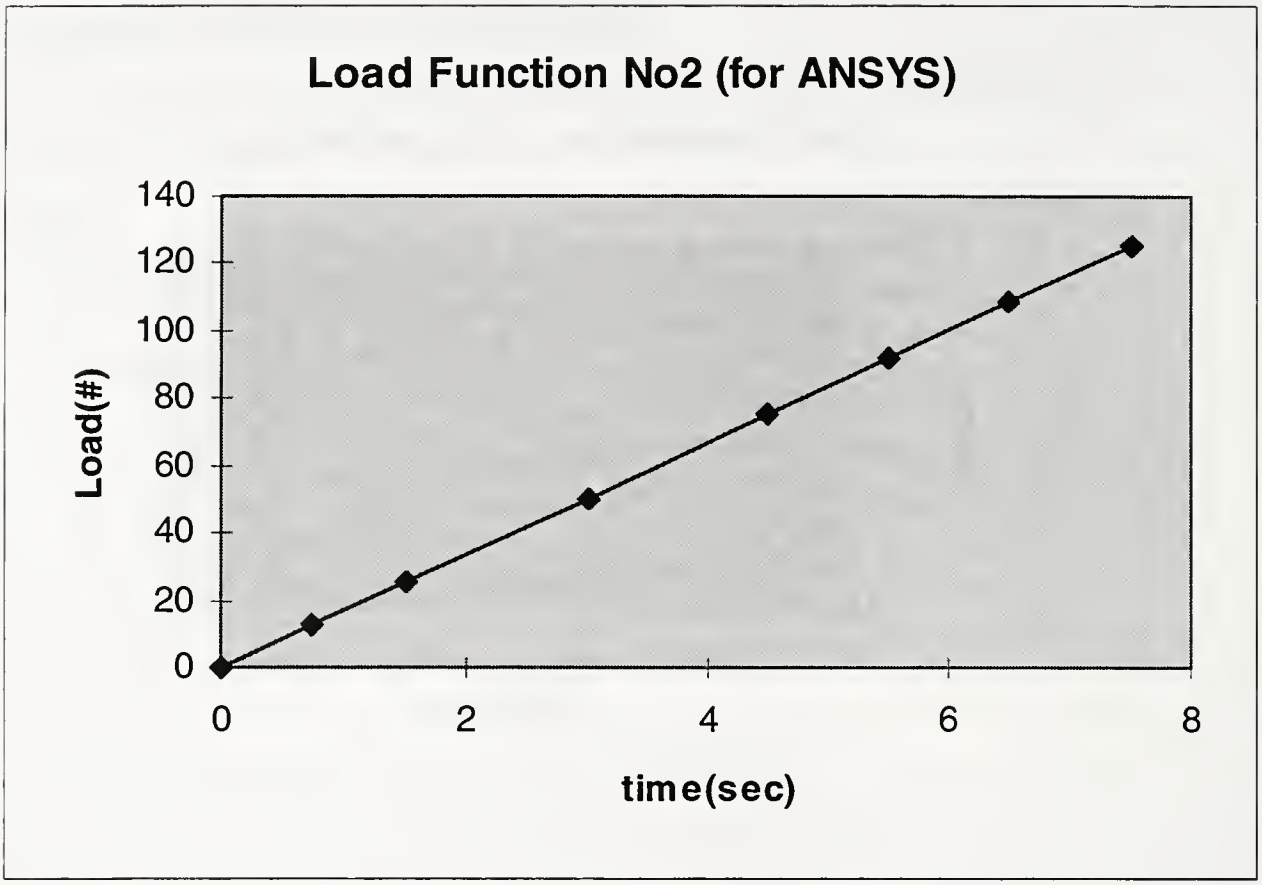
$\beta = 0.0$ (kinematics hardening rule)

3. Loading functions for S3DP and ANSYS are ramp loading functions.




Load Function No. 2 (input for s3dp)
Load (#)
140
120
100
80
60
40
20
0
0
10
20
30
40
50
time (sec)


Load Function No1 (for ANSYS)
Load(#)
250
200
150
100
50
0
0
2
4
6
8
time(sec)

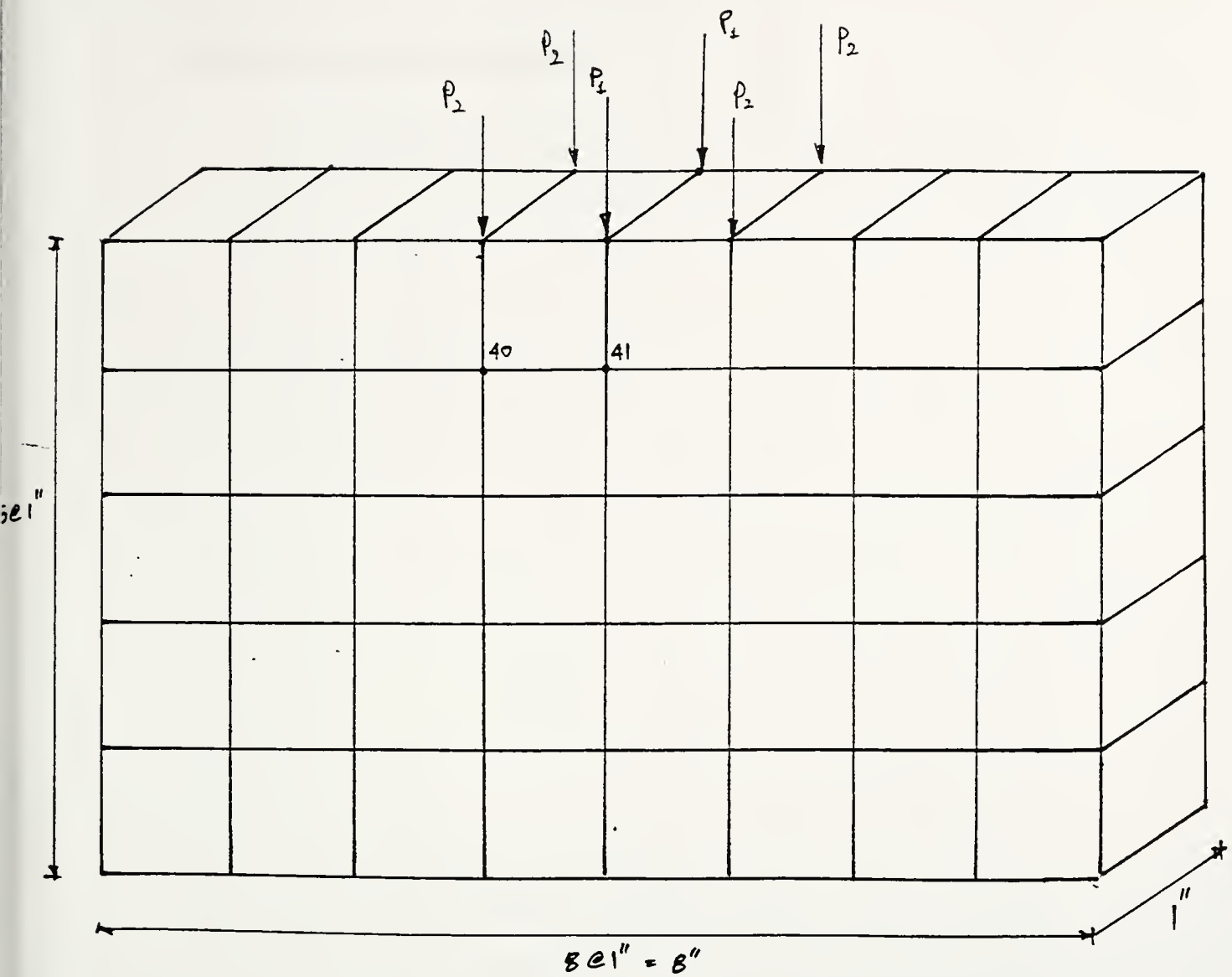


4. The examples for input data of both S3DP and ANSYS are shown after the problem results

Problem Results

S3D Results:

1. The Settlement of node no. 50 versus time are shown as the following.

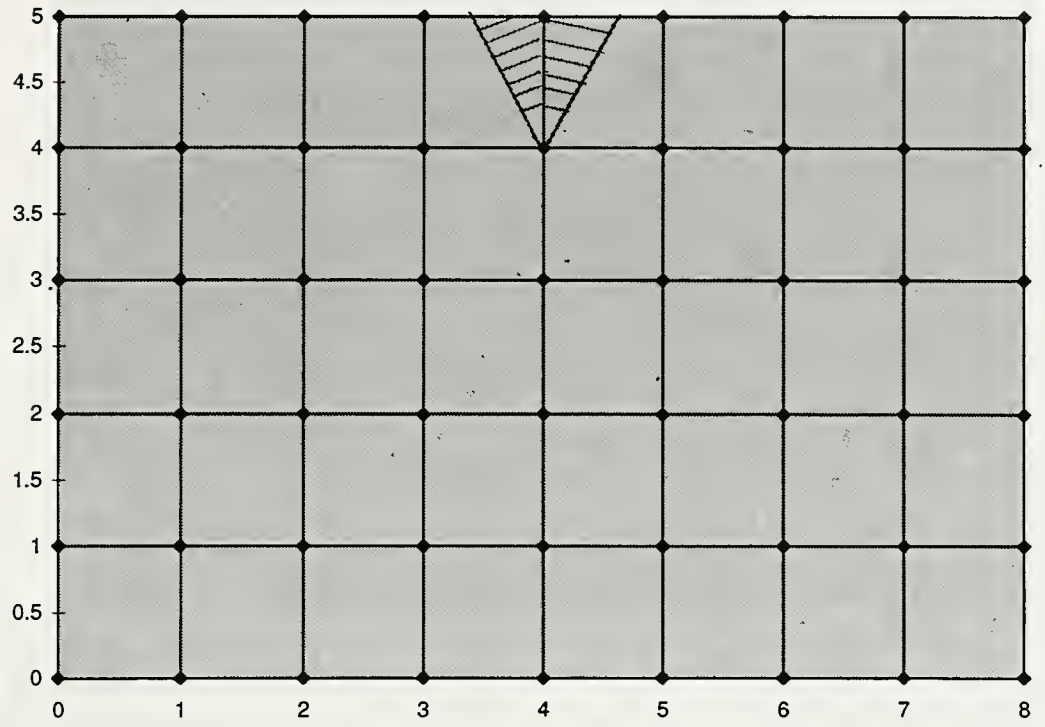


FINITE ELEMENT MESH

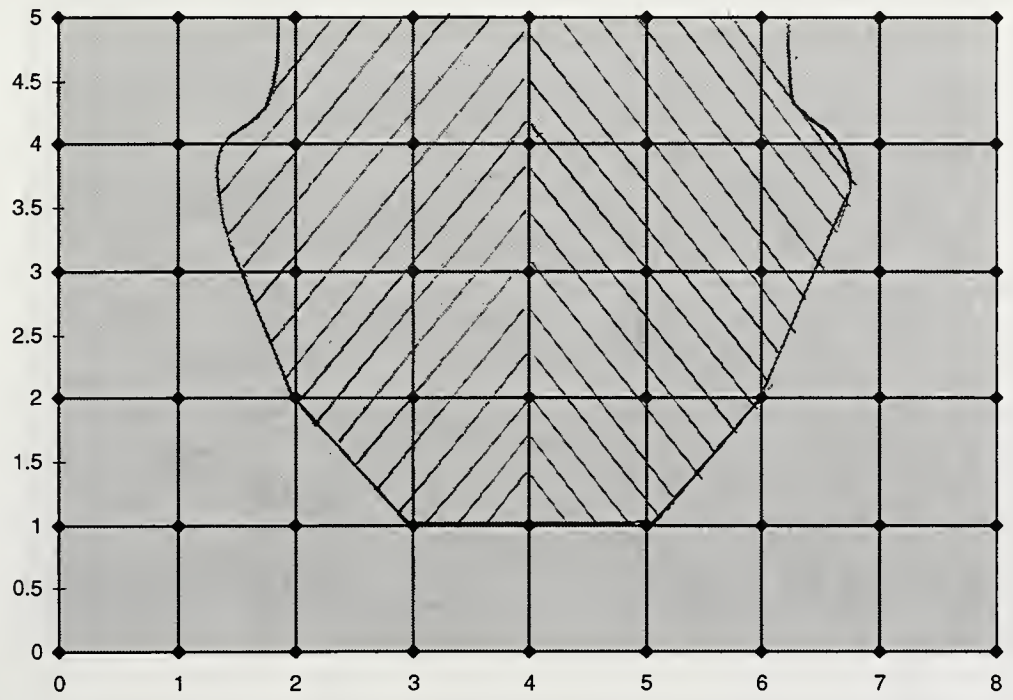
Deflection and stress plots

Settlement of node no. 50 vs time
settlement in vertical direction(in)
time (sec)
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
0
1.5
3
4.5
6
7.5
9
10.5
12
13.5
15
16.5
18
19.5
21
22.5
24
25.5
27
28.5
30
31.5
33
34.5
36
37.5
39
40.5
42
43.5
45
46.5
48
49.5

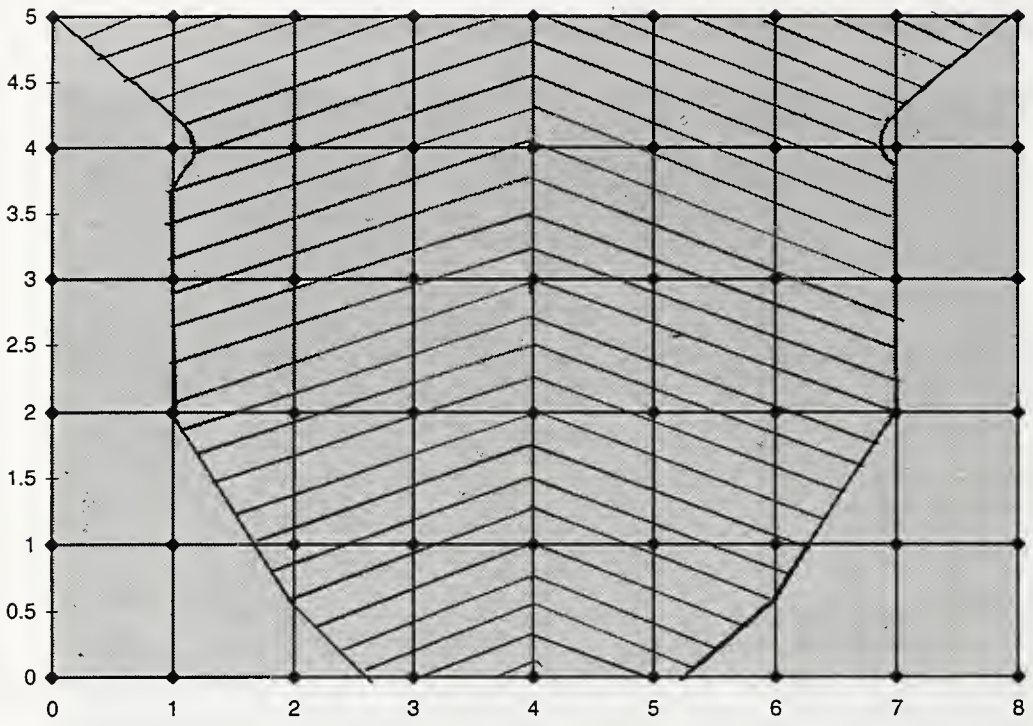
2. Plastic Zone for S3DP and ANSYS are shown as the followings:



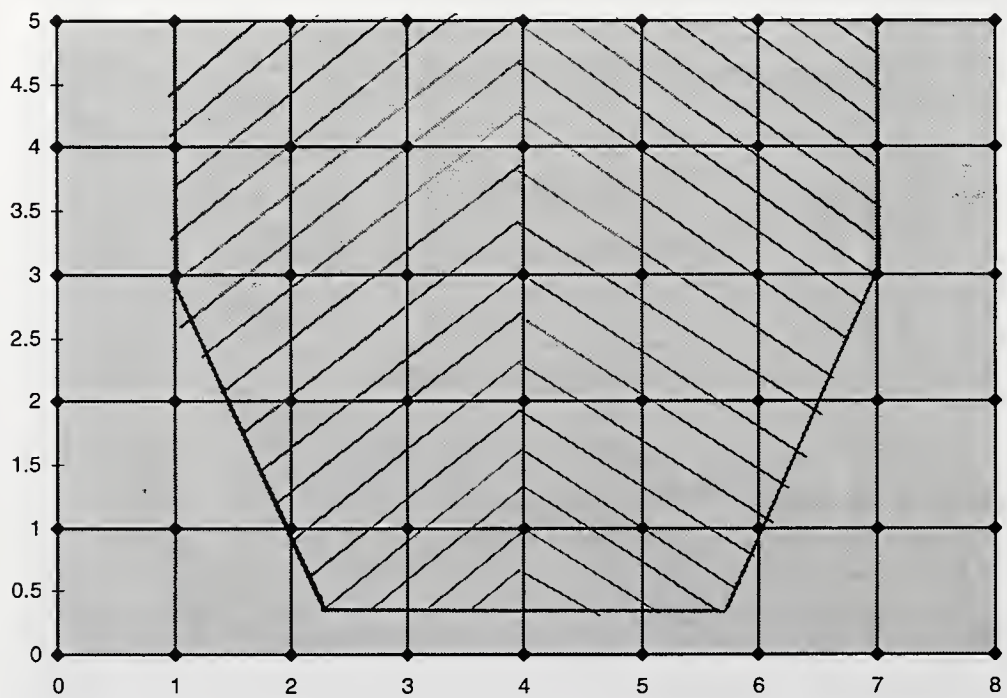
S3DP Plastic zone at time = 2.5 sec (5000 steps)



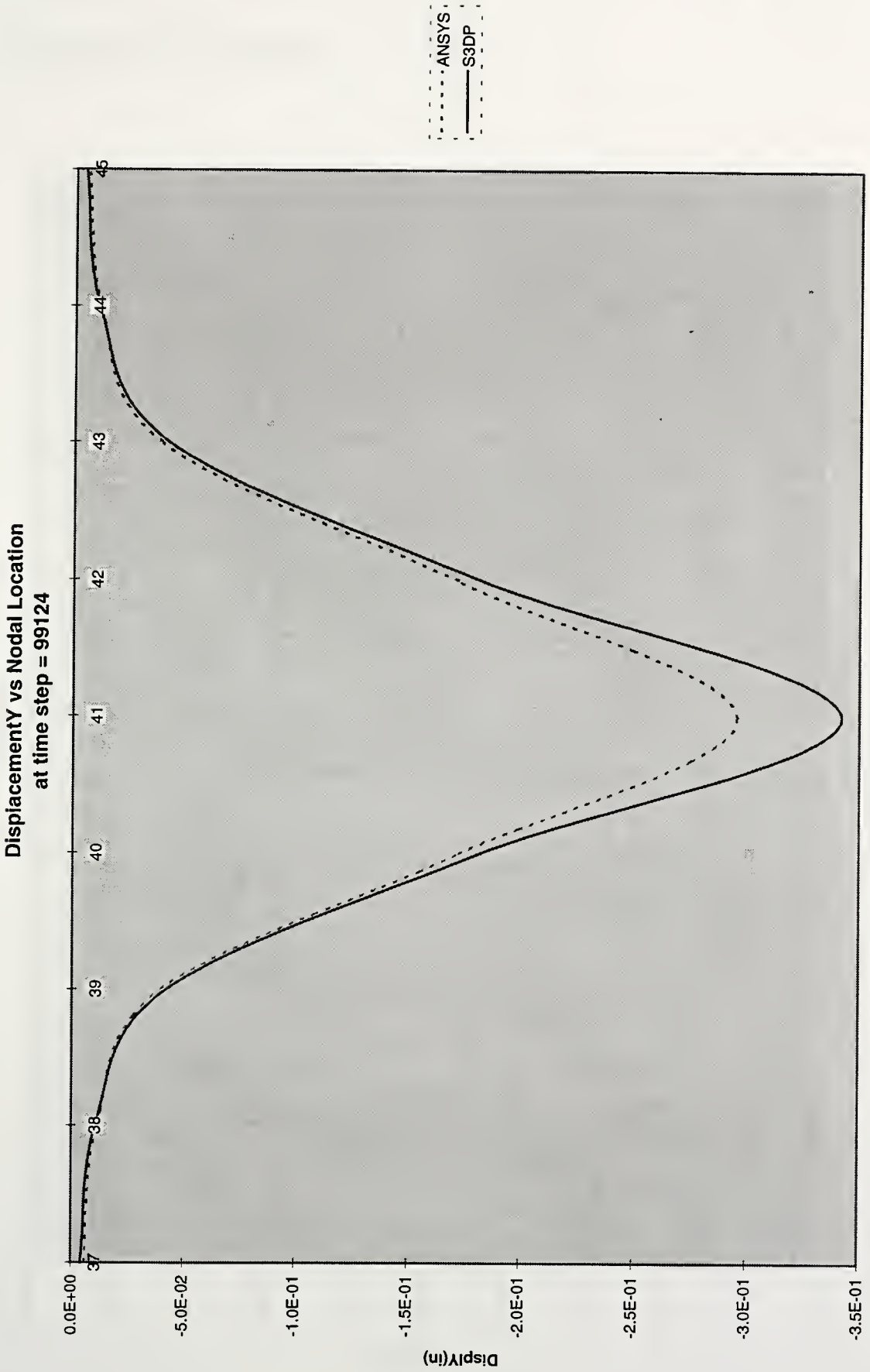
S3DP Plastic zone at time = 7.5 sec (15000 steps)

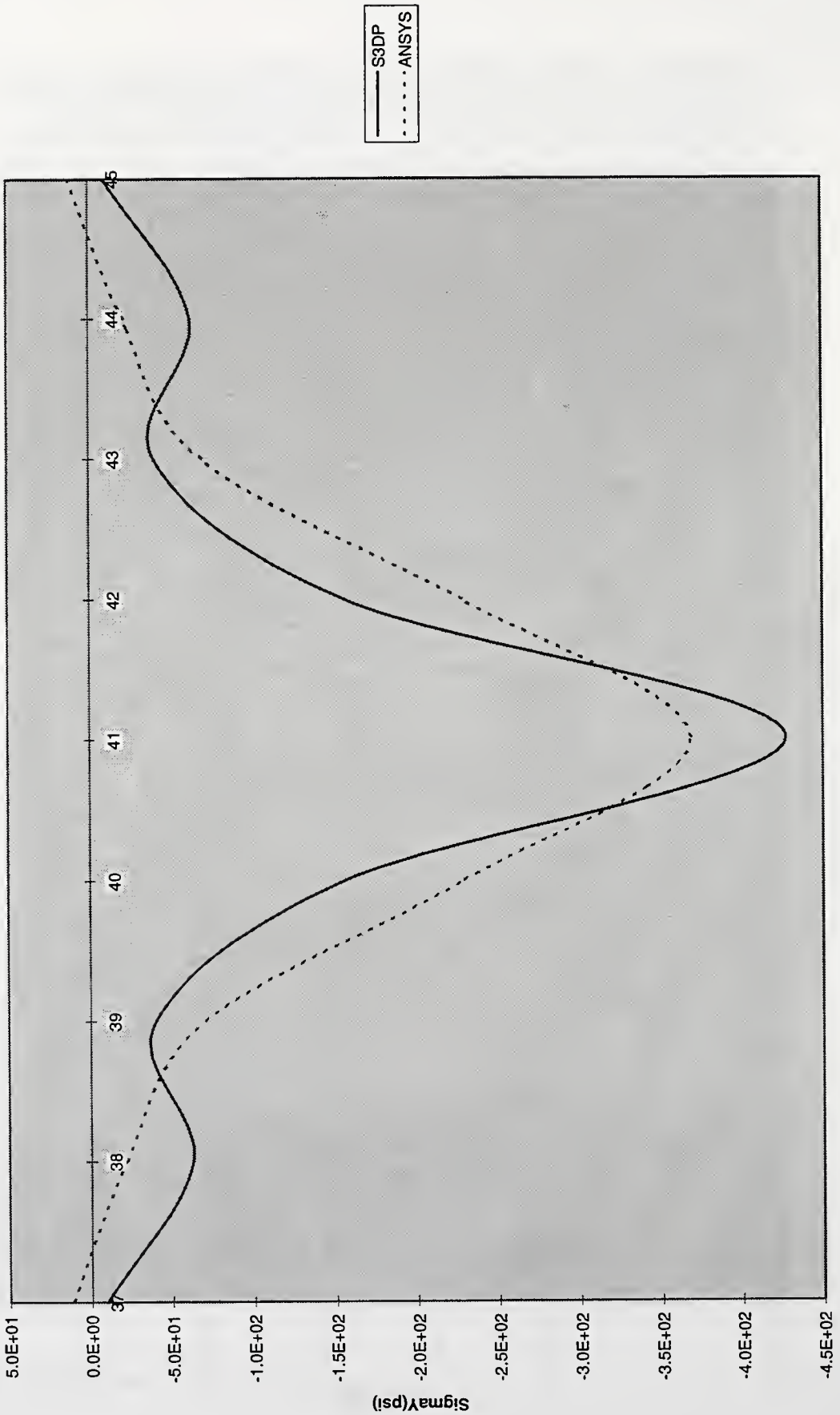


S3DP Plastic zone at time = 47.75sec (last time step)



ANSYS Plastic zone at last time step


DisplacementY vs Nodal Location
at time step = 99124
ANSYS
S3DP
DisplY(in)
0.0E+00
-5.0E-02
-1.0E-01
-1.5E-01
-2.0E-01
-2.5E-01
-3.0E-01
-3.5E-01
37
38
39
40
41
42
43
44
45
nodal location


SigmaY vs Nodal Location
at time step = 99124 or 49.5 sec.
S3DP
ANSYS
SigmaY(psi)
5.0E+01
0.0E+00
-5.0E+01
-1.0E+02
-1.5E+02
-2.0E+02
-2.5E+02
-3.0E+02
-3.5E+02
-4.0E+02
-4.5E+02
37
38
39
40
41
42
43
44
45
Node No.

Input file for Solid3D

Input Data File

```
straight edge boundary w/ ramp load
500 108 40 1 18 3 100000  5.e-4  1.e+4  1.e-10  0.
0 1 0 1
1    0.   0.   1.   1  1  1
2    1.   0.   1.   1  1  1
3    2.   0.   1.   1  1  1
4    3.   0.   1.   1  1  1
5    4.   0.   1.   1  1  1
6    5.   0.   1.   1  1  1
7    6.   0.   1.   1  1  1
8    7.   0.   1.   1  1  1
9    8.   0.   1.   1  1  1
10   0.   1.   1.   1  0  0
11   1.   1.   1.   0  0  0
12   2.   1.   1.   0  0  0
13   3.   1.   1.   0  0  0
14   4.   1.   1.   0  0  0
15   5.   1.   1.   0  0  0
16   6.   1.   1.   0  0  0
17   7.   1.   1.   0  0  0
18   8.   1.   1.   1  0  0
19   0.   2.   1.   1  0  0
20   1.   2.   1.   0  0  0
21   2.   2.   1.   0  0  0
22   3.   2.   1.   0  0  0
23   4.   2.   1.   0  0  0
24   5.   2.   1.   0  0  0
25   6.   2.   1.   0  0  0
26   7.   2.   1.   0  0  0
27   8.   2.   1.   1  0  0
28   0.   3.   1.   1  0  0
29   1.   3.   1.   0  0  0
30   2.   3.   1.   0  0  0
31   3.   3.   1.   0  0  0
32   4.   3.   1.   0  0  0
33   5.   3.   1.   0  0  0
34   6.   3.   1.   0  0  0
35   7.   3.   1.   0  0  0
36   8.   3.   1.   1  0  0
37   0.   4.   1.   1  0  0
38   1.   4.   1.   0  0  0
39   2.   4.   1.   0  0  0
40   3.   4.   1.   0  0  0
41   4.   4.   1.   0  0  0
42   5.   4.   1.   0  0  0
43   6.   4.   1.   0  0  0
44   7.   4.   1.   0  0  0
```

45	8.	4.	1.	1	0	0
46	0.	5.	1.	1	0	0
47	1.	5.	1.	0	0	0
48	2.	5.	1.	0	0	0
49	3.	5.	1.	0	0	0
50	4.	5.	1.	0	0	0
51	5.	5.	1.	0	0	0
52	6.	5.	1.	0	0	0
53	7.	5.	1.	0	0	0
54	8.	5.	1.	1	0	0
55	0.	0.	0.	1	1	1
56	1.	0.	0.	1	1	1
57	2.	0.	0.	1	1	1
58	3.	0.	0.	1	1	1
59	4.	0.	0.	1	1	1
60	5.	0.	0.	1	1	1
61	6.	0.	0.	1	1	1
62	7.	0.	0.	1	1	1
63	8.	0.	0.	1	1	1
64	0.	1.	0.	1	0	0
65	1.	1.	0.	0	0	0
66	2.	1.	0.	0	0	0
67	3.	1.	0.	0	0	0
68	4.	1.	0.	0	0	0
69	5.	1.	0.	0	0	0
70	6.	1.	0.	0	0	0
71	7.	1.	0.	0	0	0
72	8.	1.	0.	1	0	0
73	0.	2.	0.	1	0	0
74	1.	2.	0.	0	0	0
75	2.	2.	0.	0	0	0
76	3.	2.	0.	0	0	0
77	4.	2.	0.	0	0	0
78	5.	2.	0.	0	0	0
79	6.	2.	0.	0	0	0
80	7.	2.	0.	0	0	0
81	8.	2.	0.	1	0	0
82	0.	3.	0.	1	0	0
83	1.	3.	0.	0	0	0
84	2.	3.	0.	0	0	0
85	3.	3.	0.	0	0	0
86	4.	3.	0.	0	0	0
87	5.	3.	0.	0	0	0
88	6.	3.	0.	0	0	0
89	7.	3.	0.	0	0	0
90	8.	3.	0.	1	0	0
91	0.	4.	0.	1	0	0
92	1.	4.	0.	0	0	0
93	2.	4.	0.	0	0	0

94 3. 4. 0. 0 0 0
95 4. 4. 0. 0 0 0
96 5. 4. 0. 0 0 0
97 6. 4. 0. 0 0 0
98 7. 4. 0. 0 0 0
99 8. 4. 0. 1 0 0
100 0. 5. 0. 1 0 0
101 1. 5. 0. 0 0 0
102 2. 5. 0. 0 0 0
103 3. 5. 0. 0 0 0
104 4. 5. 0. 0 0 0
105 5. 5. 0. 0 0 0
106 6. 5. 0. 0 0 0
107 7. 5. 0. 0 0 0
108 8. 5. 0. 1 0 0
1 1 2 11 10 55 56 65 64 1 1 1 1 1
2 2 3 12 11 56 57 66 65 1 1 2 1 1
3 3 4 13 12 57 58 67 66 1 1 3 1 1
4 4 5 14 13 58 59 68 67 1 1 4 1 1
5 5 6 15 14 59 60 69 68 1 1 5 1 1
6 6 7 16 15 60 61 70 69 1 1 6 1 1
7 7 8 17 16 61 62 71 70 1 1 7 1 1
8 8 9 18 17 62 63 72 71 1 1 8 1 1
9 10 11 20 19 64 65 74 73 1 2 1 1 1
10 11 12 21 20 65 66 75 74 1 2 2 1 1
11 12 13 22 21 66 67 76 75 1 2 3 1 1
12 13 14 23 22 67 68 77 76 1 2 4 1 1
13 14 15 24 23 68 69 78 77 1 2 5 1 1
14 15 16 25 24 69 70 79 78 1 2 6 1 1
15 16 17 26 25 70 71 80 79 1 2 7 1 1
16 17 18 27 26 71 72 81 80 1 2 8 1 1
17 19 20 29 28 73 74 83 82 1 3 1 1 1
18 20 21 30 29 74 75 84 83 1 3 2 1 1
19 21 22 31 30 75 76 85 84 1 3 3 1 1
20 22 23 32 31 76 77 86 85 1 3 4 1 1
21 23 24 33 32 77 78 87 86 1 3 5 1 1
22 24 25 34 33 78 79 88 87 1 3 6 1 1
23 25 26 35 34 79 80 89 88 1 3 7 1 1
24 26 27 36 35 80 81 90 89 1 3 8 1 1
25 28 29 38 37 82 83 92 91 1 4 1 1 1
26 29 30 39 38 83 84 93 92 1 4 2 1 1
27 30 31 40 39 84 85 94 93 1 4 3 1 1
28 31 32 41 40 85 86 95 94 1 4 4 1 1
29 32 33 42 41 86 87 96 95 1 4 5 1 1
30 33 34 43 42 87 88 97 96 1 4 6 1 1
31 34 35 44 43 88 89 98 97 1 4 7 1 1
32 35 36 45 44 89 90 99 98 1 4 8 1 1
33 37 38 47 46 91 92 101 100 1 5 1 1 1
34 38 39 48 47 92 93 102 101 1 5 2 1 1

```
35  39  40  49  48  93  94  103  102  1  5  3  1  1
36  40  41  50  49  94  95  104  103  1  5  4  1  1
37  41  42  51  50  95  96  105  104  1  5  5  1  1
38  42  43  52  51  96  97  106  105  1  5  6  1  1
39  43  44  53  52  97  98  107  106  1  5  7  1  1
40  44  45  54  53  98  99  108  107  1  5  8  1  1
1 1 7.4e-2  15000.0  0.30  130.
0    0   2   1000.   0
2 6
3
0.              0.0
7.5           -250.0
1000.         -250.0
3
0.              0.0
7.5           -125.0
1000.         -125.0
50  2 1
104 2 1
49  2 2
103 2 2
51  2 2
105 2 2

37 3 2
38 3 2
39 3 2
40 3 2
41 3 2
42 3 2
43 3 2
44 3 2
45 3 2

37 0 2
38 0 2
39 0 2
40 0 2
41 0 2
42 0 2
43 0 2
44 0 2
45 0 2
```

Sample output file for Solid3D

Input Information File

```
 card  1      straight edge boundary w/ ramp load on von Mises material
 ------------------------------------------------------------------------------
  card  2     parameter card
               no of time-steps skipped between outputs =   500
               number of nodes          =       108
               number of elements       =        40
               number of materials      =         1
               number of output req     =        18
               no. of d.o.f/node        =         3
               no. of time steps        =    100000
               time increment           =  .500E-03
               coeff of mass damping    =  .100E+05
               tolerance limit          =  .100E-09
               acceleration of gravity =    .00000

  card  3     index card
               index for accel.       =         0
               index for force        =         1
               index for I. C.        =         0
               index for mesh output(1) or not(0) =   1

  card  4       nodal  point data
      node no.   x-ord    y-ord     z-ord      ifx      ify      ifz
            1     .00      .00      1.00       1        1        1
            2    1.00      .00      1.00       1        1        1
            3    2.00      .00      1.00       1        1        1
            4    3.00      .00      1.00       1        1        1
            5    4.00      .00      1.00       1        1        1
            6    5.00      .00      1.00       1        1        1
            7    6.00      .00      1.00       1        1        1
            8    7.00      .00      1.00       1        1        1
            9    8.00      .00      1.00       1        1        1
           10     .00     1.00      1.00       1        0        0
           11    1.00     1.00      1.00       0        0        0
           12    2.00     1.00      1.00       0        0        0
           13    3.00     1.00      1.00       0        0        0
           14    4.00     1.00      1.00       0        0        0
           15    5.00     1.00      1.00       0        0        0
           16    6.00     1.00      1.00       0        0        0
           17    7.00     1.00      1.00       0        0        0
           18    8.00     1.00      1.00       1        0        0
           19     .00     2.00      1.00       1        0        0
           20    1.00     2.00      1.00       0        0        0
           21    2.00     2.00      1.00       0        0        0
           22    3.00     2.00      1.00       0        0        0
           23    4.00     2.00      1.00       0        0        0
           24    5.00     2.00      1.00       0        0        0
           25    6.00     2.00      1.00       0        0        0
           26    7.00     2.00      1.00       0        0        0
           27    8.00     2.00      1.00       1        0        0
           28     .00     3.00      1.00       1        0        0
           29    1.00     3.00      1.00       0        0        0
           30    2.00     3.00      1.00       0        0        0
```

31	3.00	3.00	1.00	0	0	0
32	4.00	3.00	1.00	0	0	0
33	5.00	3.00	1.00	0	0	0
34	6.00	3.00	1.00	0	0	0
35	7.00	3.00	1.00	0	0	0
36	8.00	3.00	1.00	1	0	0
37	.00	4.00	1.00	1	0	0
38	1.00	4.00	1.00	0	0	0
39	2.00	4.00	1.00	0	0	0
40	3.00	4.00	1.00	0	0	0
41	4.00	4.00	1.00	0	0	0
42	5.00	4.00	1.00	0	0	0
43	6.00	4.00	1.00	0	0	0
44	7.00	4.00	1.00	0	0	0
45	8.00	4.00	1.00	1	0	0
46	.00	5.00	1.00	1	0	0
47	1.00	5.00	1.00	0	0	0
48	2.00	5.00	1.00	0	0	0
49	3.00	5.00	1.00	0	0	0
50	4.00	5.00	1.00	0	0	0
51	5.00	5.00	1.00	0	0	0
52	6.00	5.00	1.00	0	0	0
53	7.00	5.00	1.00	0	0	0
54	8.00	5.00	1.00	1	0	0
55	.00	.00	.00	1	1	1
56	1.00	.00	.00	1	1	1
57	2.00	.00	.00	1	1	1
58	3.00	.00	.00	1	1	1
59	4.00	.00	.00	1	1	1
60	5.00	.00	.00	1	1	1
61	6.00	.00	.00	1	1	1
62	7.00	.00	.00	1	1	1
63	8.00	.00	.00	1	1	1
64	.00	1.00	.00	1	0	0
65	1.00	1.00	.00	0	0	0
66	2.00	1.00	.00	0	0	0
67	3.00	1.00	.00	0	0	0
68	4.00	1.00	.00	0	0	0
69	5.00	1.00	.00	0	0	0
70	6.00	1.00	.00	0	0	0
71	7.00	1.00	.00	0	0	0
72	8.00	1.00	.00	1	0	0
73	.00	2.00	.00	1	0	0
74	1.00	2.00	.00	0	0	0
75	2.00	2.00	.00	0	0	0
76	3.00	2.00	.00	0	0	0
77	4.00	2.00	.00	0	0	0
78	5.00	2.00	.00	0	0	0
79	6.00	2.00	.00	0	0	0
80	7.00	2.00	.00	0	0	0
81	8.00	2.00	.00	1	0	0
82	.00	3.00	.00	1	0	0
83	1.00	3.00	.00	0	0	0
84	2.00	3.00	.00	0	0	0
85	3.00	3.00	.00	0	0	0
86	4.00	3.00	.00	0	0	0

87	5.00	3.00	.00	0	0	0
88	6.00	3.00	.00	0	0	0
89	7.00	3.00	.00	0	0	0
90	8.00	3.00	.00	1	0	0
91	.00	4.00	.00	1	0	0
92	1.00	4.00	.00	0	0	0
93	2.00	4.00	.00	0	0	0
94	3.00	4.00	.00	0	0	0
95	4.00	4.00	.00	0	0	0
96	5.00	4.00	.00	0	0	0
97	6.00	4.00	.00	0	0	0
98	7.00	4.00	.00	0	0	0
99	8.00	4.00	.00	1	0	0
100	.00	5.00	.00	1	0	0
101	1.00	5.00	.00	0	0	0
102	2.00	5.00	.00	0	0	0
103	3.00	5.00	.00	0	0	0
104	4.00	5.00	.00	0	0	0
105	5.00	5.00	.00	0	0	0
106	6.00	5.00	.00	0	0	0
107	7.00	5.00	.00	0	0	0
108	8.00	5.00	.00	1	0	0

card 5 element data

ele.no.	N1	N2	N3	N4	N5	N6	N7	N8	mat	row	col	E-con.
1	1	2	11	10	55	56	65	64	1	1	1	1
2	2	3	12	11	56	57	66	65	1	1	2	1
3	3	4	13	12	57	58	67	66	1	1	3	1
4	4	5	14	13	58	59	68	67	1	1	4	1
5	5	6	15	14	59	60	69	68	1	1	5	1
6	6	7	16	15	60	61	70	69	1	1	6	1
7	7	8	17	16	61	62	71	70	1	1	7	1
8	8	9	18	17	62	63	72	71	1	1	8	1
9	10	11	20	19	64	65	74	73	1	2	1	1
10	11	12	21	20	65	66	75	74	1	2	2	1
11	12	13	22	21	66	67	76	75	1	2	3	1
12	13	14	23	22	67	68	77	76	1	2	4	1
13	14	15	24	23	68	69	78	77	1	2	5	1
14	15	16	25	24	69	70	79	78	1	2	6	1
15	16	17	26	25	70	71	80	79	1	2	7	1
16	17	18	27	26	71	72	81	80	1	2	8	1
17	19	20	29	28	73	74	83	82	1	3	1	1
18	20	21	30	29	74	75	84	83	1	3	2	1
19	21	22	31	30	75	76	85	84	1	3	3	1
20	22	23	32	31	76	77	86	85	1	3	4	1
21	23	24	33	32	77	78	87	86	1	3	5	1
22	24	25	34	33	78	79	88	87	1	3	6	1
23	25	26	35	34	79	80	89	88	1	3	7	1
24	26	27	36	35	80	81	90	89	1	3	8	1
25	28	29	38	37	82	83	92	91	1	4	1	1
26	29	30	39	38	83	84	93	92	1	4	2	1
27	30	31	40	39	84	85	94	93	1	4	3	1
28	31	32	41	40	85	86	95	94	1	4	4	1
29	32	33	42	41	86	87	96	95	1	4	5	1
30	33	34	43	42	87	88	97	96	1	4	6	1
31	34	35	44	43	88	89	98	97	1	4	7	1

32	35	36	45	44	89	90	99	98	1	4	8	1
33	37	38	47	46	91	92	101	100	1	5	1	1
34	38	39	48	47	92	93	102	101	1	5	2	1
35	39	40	49	48	93	94	103	102	1	5	3	1
36	40	41	50	49	94	95	104	103	1	5	4	1
37	41	42	51	50	95	96	105	104	1	5	5	1
38	42	43	52	51	96	97	106	105	1	5	6	1
39	43	44	53	52	97	98	107	106	1	5	7	1
40	44	45	54	53	98	99	108	107	1	5	8	1

card 6 & 7 material property data

material no.	mass density	Youngs modulus	Poisson ratio	hardening rules(b)	uniaxial yield stress
1	.7400E-01	.1500E+05	.300	.000	.1300E+03

card 11 prescribed impact force

total no. of impact force history = 2

total no. of nodes applied by impact force = 6

card 12 & 13 impact force history card

force history no.	pair no.	time	iforce
1	1	.0000E+00	.0000E+00
1	2	.7500E+01	-.2500E+03
1	3	.1000E+03	-.2500E+03

card 12 & 13 impact force history card

force history no.	pair no.	time	iforce
2	1	.0000E+00	.0000E+00
2	2	.7500E+01	-.1250E+03
2	3	.1000E+03	-.1250E+03

card 14 nodal impact force information

node no.	x-(1),y-(2),z-(3)	force history no.
50	2	1
104	2	1
49	2	2
103	2	2
51	2	2
105	2	2

card 21 output information card

seq.	node#	d-(0),v-(1),a-(2), stress-(3)	x(1),y(2),z(3) xy(4),yz(5),xz(6)
1	37	3	2
2	38	3	2
3	39	3	2
4	40	3	2
5	41	3	2
6	42	3	2
7	43	3	2
8	44	3	2
9	45	3	2
10	37	0	2
11	38	0	2
12	39	0	2
13	40	0	2

14	41	0	2
15	42	0	2
16	43	0	2
17	44	0	2
18	45	0	2

nstep= 5000

Plastic element no [element no.Gauss point no] =

36.2	36.3	36.6	36.7	37.1	37.4	37.5	37.8

nstep= 15000

Plastic element no [element no.Gauss point no] =

11.2	11.3	11.4	11.6	11.7	11.8	12.1	12.2
12.3	12.4	12.5	12.6	12.7	12.8	13.1	13.2
13.3	13.4	13.5	13.6	13.7	13.8	14.1	14.3
14.4	14.5	14.7	14.8	18.3	18.7	19.1	19.2
19.3	19.4	19.5	19.6	19.7	19.8	20.1	20.2
20.3	20.4	20.5	20.6	20.7	20.8	21.1	21.2
21.3	21.4	21.5	21.6	21.7	21.8	22.1	22.2
22.3	22.4	22.5	22.6	22.7	22.8	23.4	23.8
26.2	26.3	26.4	26.6	26.7	26.8	27.1	27.2
27.3	27.4	27.5	27.6	27.7	27.8	28.1	28.2
28.3	28.4	28.5	28.6	28.7	28.8	29.1	29.2
29.3	29.4	29.5	29.6	29.7	29.8	30.1	30.2
30.3	30.4	30.5	30.6	30.7	30.8	31.1	31.3
31.4	31.5	31.7	31.8	34.3	34.7	35.1	35.2
35.3	35.4	35.5	35.6	35.7	35.8	36.1	36.2
36.3	36.4	36.5	36.6	36.7	36.8	37.1	37.2
37.3	37.4	37.5	37.6	37.7	37.8	38.1	38.2
38.3	38.4	38.5	38.6	38.7	38.8	39.4	39.8

nstep= 95500

Plastic element no [element no.Gauss point no] =

2.3	2.7	3.2	3.3	3.4	3.6	3.7	3.8
4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8
5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8
6.1	6.3	6.4	6.5	6.7	6.8	7.4	7.8
10.2	10.3	10.4	10.6	10.7	10.8	11.1	11.2
11.3	11.4	11.5	11.6	11.7	11.8	12.1	12.2
12.3	12.4	12.5	12.6	12.7	12.8	13.1	13.2
13.3	13.4	13.5	13.6	13.7	13.8	14.1	14.2
14.3	14.4	14.5	14.6	14.7	14.8	15.1	15.3
15.4	15.5	15.7	15.8	18.1	18.2	18.3	18.4
18.5	18.6	18.7	18.8	19.1	19.2	19.3	19.4
19.5	19.6	19.7	19.8	20.1	20.2	20.3	20.4
20.5	20.6	20.7	20.8	21.1	21.2	21.3	21.4
21.5	21.6	21.7	21.8	22.1	22.2	22.3	22.4
22.5	22.6	22.7	22.8	23.1	23.2	23.3	23.4
23.5	23.6	23.7	23.8	26.1	26.2	26.3	26.4
26.5	26.6	26.7	26.8	27.1	27.2	27.3	27.4
27.5	27.6	27.7	27.8	28.1	28.2	28.3	28.4
28.5	28.6	28.7	28.8	29.1	29.2	29.3	29.4
29.5	29.6	29.7	29.8	30.1	30.2	30.3	30.4

30.5	30.6	30.7	30.8	31.1	31.2	31.3	31.4
31.5	31.6	31.7	31.8	33.3	33.4	33.7	33.8
34.2	34.3	34.4	34.6	34.7	34.8	35.1	35.2
35.3	35.4	35.5	35.6	35.7	35.8	36.1	36.2
36.3	36.4	36.5	36.6	36.7	36.8	37.1	37.2
37.3	37.4	37.5	37.6	37.7	37.8	38.1	38.2
38.3	38.4	38.5	38.6	38.7	38.8	39.1	39.3
39.4	39.5	39.7	39.8	40.3	40.4	40.7	40.8

Output Information File

```
card  21   output information card
              seq.     node#      d-(0),v-(1),a-(2),    x(1),y(2),z(3)
                                        stress-(3)      xy(4),yz(5),xz(6)
                1        37                3                  2
                2        38                3                  2
                3        39                3                  2
                4        40                3                  2
                5        41                3                  2
                6        42                3                  2
                7        43                3                  2
                8        44                3                  2
                9        45                3                  2
               10        37                0                  2
               11        38                0                  2
               12        39                0                  2
               13        40                0                  2
               14        41                0                  2
               15        42                0                  2
               16        43                0                  2
               17        44                0                  2
               18        45                0                  2
 time =   .25000E+00 -.438E-01 -.139E+00 -.245E+00 -.489E+01 -.953E+01 -.489E+01
                     -.245E+00 -.139E+00 -.438E-01  .788E-06 -.150E-04 -.139E-03
                     -.466E-03 -.685E-03 -.466E-03 -.139E-03 -.150E-04  .788E-06

 time =   .50000E+00 -.108E+00 -.399E+00 -.993E+00 -.115E+02 -.217E+02 -.115E+02
                     -.993E+00 -.399E+00 -.108E+00 -.353E-04 -.124E-03 -.559E-03
                     -.150E-02 -.209E-02 -.150E-02 -.559E-03 -.124E-03 -.353E-04

 time =   .75000E+00 -.291E+00 -.832E+00 -.205E+01 -.185E+02 -.344E+02 -.185E+02
                     -.205E+01 -.832E+00 -.291E+00 -.151E-03 -.341E-03 -.116E-02
                     -.278E-02 -.378E-02 -.278E-02 -.116E-02 -.341E-03 -.151E-03

 time =   .10000E+01 -.592E+00 -.140E+01 -.329E+01 -.258E+02 -.473E+02 -.258E+02
                     -.329E+01 -.140E+01 -.592E+00 -.338E-03 -.638E-03 -.186E-02
                     -.420E-02 -.561E-02 -.420E-02 -.186E-02 -.638E-03 -.338E-03

 time =   .12500E+01 -.974E+00 -.206E+01 -.462E+01 -.332E+02 -.604E+02 -.332E+02
                     -.462E+01 -.206E+01 -.974E+00 -.572E-03 -.987E-03 -.263E-02
                     -.568E-02 -.751E-02 -.568E-02 -.263E-02 -.987E-03 -.572E-03

 time =   .15000E+01 -.141E+01 -.276E+01 -.602E+01 -.407E+02 -.735E+02 -.407E+02
                     -.602E+01 -.276E+01 -.141E+01 -.837E-03 -.137E-02 -.342E-02
                     -.720E-02 -.945E-02 -.720E-02 -.342E-02 -.137E-02 -.837E-03

 time =   .17500E+01 -.187E+01 -.350E+01 -.744E+01 -.482E+02 -.867E+02 -.482E+02
                     -.744E+01 -.350E+01 -.187E+01 -.112E-02 -.177E-02 -.424E-02
                     -.873E-02 -.114E-01 -.873E-02 -.424E-02 -.177E-02 -.112E-02

 time =   .20000E+01 -.236E+01 -.426E+01 -.889E+01 -.557E+02 -.999E+02 -.557E+02
                     -.889E+01 -.426E+01 -.236E+01 -.141E-02 -.217E-02 -.506E-02
                     -.103E-01 -.134E-01 -.103E-01 -.506E-02 -.217E-02 -.141E-02

 time =   .22500E+01 -.285E+01 -.503E+01 -.103E+02 -.632E+02 -.113E+03 -.632E+02
                     -.103E+02 -.503E+01 -.285E+01 -.171E-02 -.259E-02 -.590E-02
                     -.118E-01 -.154E-01 -.118E-01 -.590E-02 -.259E-02 -.171E-02
```

```
time =  .25000E+01 -.334E+01 -.580E+01 -.118E+02 -.701E+02 -.132E+03 -.701E+02
                   -.118E+02 -.580E+01 -.334E+01 -.201E-02 -.300E-02 -.672E-02
                   -.134E-01 -.173E-01 -.134E-01 -.672E-02 -.300E-02 -.201E-02

time =  .27500E+01 -.383E+01 -.659E+01 -.133E+02 -.790E+02 -.145E+03 -.790E+02
                   -.133E+02 -.659E+01 -.383E+01 -.231E-02 -.341E-02 -.752E-02
                   -.150E-01 -.192E-01 -.150E-01 -.752E-02 -.341E-02 -.231E-02

time =  .30000E+01 -.429E+01 -.736E+01 -.146E+02 -.904E+02 -.160E+03 -.904E+02
                   -.146E+02 -.736E+01 -.429E+01 -.260E-02 -.381E-02 -.832E-02
                   -.165E-01 -.212E-01 -.165E-01 -.832E-02 -.381E-02 -.260E-02

time =  .32500E+01 -.473E+01 -.816E+01 -.159E+02 -.103E+03 -.166E+03 -.103E+03
                   -.159E+02 -.816E+01 -.473E+01 -.288E-02 -.419E-02 -.911E-02
                   -.180E-01 -.235E-01 -.180E-01 -.911E-02 -.419E-02 -.288E-02

time =  .35000E+01 -.516E+01 -.894E+01 -.172E+02 -.109E+03 -.177E+03 -.109E+03
                   -.172E+02 -.894E+01 -.516E+01 -.314E-02 -.455E-02 -.991E-02
                   -.196E-01 -.265E-01 -.196E-01 -.991E-02 -.455E-02 -.314E-02

time =  .37500E+01 -.552E+01 -.965E+01 -.189E+02 -.114E+03 -.187E+03 -.114E+03
                   -.189E+02 -.965E+01 -.552E+01 -.338E-02 -.489E-02 -.107E-01
                   -.213E-01 -.303E-01 -.213E-01 -.107E-01 -.489E-02 -.338E-02

time =  .40000E+01 -.582E+01 -.103E+02 -.207E+02 -.120E+03 -.197E+03 -.120E+03
                   -.207E+02 -.103E+02 -.582E+01 -.358E-02 -.518E-02 -.114E-01
                   -.233E-01 -.349E-01 -.233E-01 -.114E-01 -.518E-02 -.358E-02

time =  .42500E+01 -.606E+01 -.108E+02 -.240E+02 -.123E+03 -.206E+03 -.123E+03
                   -.240E+02 -.108E+02 -.606E+01 -.376E-02 -.545E-02 -.122E-01
                   -.255E-01 -.401E-01 -.255E-01 -.122E-01 -.545E-02 -.376E-02

time =  .45000E+01 -.627E+01 -.114E+02 -.264E+02 -.125E+03 -.213E+03 -.125E+03
                   -.264E+02 -.114E+02 -.627E+01 -.392E-02 -.570E-02 -.128E-01
                   -.280E-01 -.462E-01 -.280E-01 -.128E-01 -.570E-02 -.392E-02

time =  .47500E+01 -.646E+01 -.120E+02 -.290E+02 -.126E+03 -.221E+03 -.126E+03
                   -.290E+02 -.120E+02 -.646E+01 -.405E-02 -.591E-02 -.134E-01
                   -.308E-01 -.531E-01 -.308E-01 -.134E-01 -.591E-02 -.405E-02

time =  .50000E+01 -.657E+01 -.125E+02 -.321E+02 -.128E+03 -.228E+03 -.128E+03
                   -.321E+02 -.125E+02 -.657E+01 -.416E-02 -.610E-02 -.141E-01
                   -.340E-01 -.609E-01 -.340E-01 -.141E-01 -.610E-02 -.416E-02

time =  .52500E+01 -.649E+01 -.131E+02 -.326E+02 -.131E+03 -.237E+03 -.131E+03
                   -.326E+02 -.131E+02 -.649E+01 -.424E-02 -.628E-02 -.146E-01
                   -.376E-01 -.697E-01 -.376E-01 -.146E-01 -.628E-02 -.424E-02

time =  .55000E+01 -.636E+01 -.138E+02 -.339E+02 -.132E+03 -.246E+03 -.132E+03
                   -.339E+02 -.138E+02 -.636E+01 -.429E-02 -.643E-02 -.152E-01
                   -.418E-01 -.794E-01 -.418E-01 -.152E-01 -.643E-02 -.429E-02

time =  .57500E+01 -.613E+01 -.145E+02 -.356E+02 -.134E+03 -.256E+03 -.134E+03
                   -.356E+02 -.145E+02 -.613E+01 -.431E-02 -.656E-02 -.158E-01
                   -.466E-01 -.901E-01 -.466E-01 -.158E-01 -.656E-02 -.431E-02

time =  .60000E+01 -.583E+01 -.152E+02 -.375E+02 -.135E+03 -.268E+03 -.135E+03
                   -.375E+02 -.152E+02 -.583E+01 -.430E-02 -.668E-02 -.165E-01
                   -.518E-01 -.102E+00 -.518E-01 -.165E-01 -.668E-02 -.430E-02
```

```
time =  .62500E+01 -.550E+01 -.159E+02 -.393E+02 -.137E+03 -.280E+03 -.137E+03
                   -.393E+02 -.159E+02 -.550E+01 -.429E-02 -.680E-02 -.171E-01
                   -.574E-01 -.114E+00 -.574E-01 -.171E-01 -.680E-02 -.429E-02

time =  .65000E+01 -.513E+01 -.165E+02 -.412E+02 -.138E+03 -.294E+03 -.138E+03
                   -.412E+02 -.165E+02 -.513E+01 -.426E-02 -.693E-02 -.178E-01
                   -.634E-01 -.127E+00 -.634E-01 -.178E-01 -.693E-02 -.426E-02

time =  .67500E+01 -.475E+01 -.173E+02 -.426E+02 -.140E+03 -.307E+03 -.140E+03
                   -.426E+02 -.173E+02 -.475E+01 -.423E-02 -.703E-02 -.186E-01
                   -.699E-01 -.141E+00 -.699E-01 -.186E-01 -.703E-02 -.423E-02

time =  .70000E+01 -.435E+01 -.183E+02 -.438E+02 -.142E+03 -.321E+03 -.142E+03
                   -.438E+02 -.183E+02 -.435E+01 -.417E-02 -.714E-02 -.194E-01
                   -.767E-01 -.155E+00 -.767E-01 -.194E-01 -.714E-02 -.417E-02

time =  .72500E+01 -.393E+01 -.196E+02 -.450E+02 -.143E+03 -.336E+03 -.143E+03
                   -.450E+02 -.196E+02 -.393E+01 -.411E-02 -.726E-02 -.204E-01
                   -.840E-01 -.171E+00 -.840E-01 -.204E-01 -.726E-02 -.411E-02

time =  .10750E+02 -.532E+01 -.476E+02 -.436E+02 -.151E+03 -.407E+03 -.151E+03
                   -.436E+02 -.476E+02 -.532E+01 -.437E-02 -.912E-02 -.339E-01
                   -.153E+00 -.296E+00 -.153E+00 -.339E-01 -.912E-02 -.437E-02

time =  .11000E+02 -.562E+01 -.487E+02 -.433E+02 -.152E+03 -.409E+03 -.152E+03
                   -.433E+02 -.487E+02 -.562E+01 -.436E-02 -.922E-02 -.345E-01
                   -.155E+00 -.300E+00 -.155E+00 -.345E-01 -.922E-02 -.436E-02

time =  .11250E+02 -.590E+01 -.497E+02 -.430E+02 -.152E+03 -.410E+03 -.152E+03
                   -.430E+02 -.497E+02 -.590E+01 -.436E-02 -.931E-02 -.350E-01
                   -.157E+00 -.303E+00 -.157E+00 -.350E-01 -.931E-02 -.436E-02

time =  .11500E+02 -.617E+01 -.507E+02 -.427E+02 -.153E+03 -.412E+03 -.153E+03
                   -.427E+02 -.507E+02 -.617E+01 -.435E-02 -.940E-02 -.356E-01
                   -.159E+00 -.306E+00 -.159E+00 -.356E-01 -.940E-02 -.435E-02

time =  .11750E+02 -.643E+01 -.515E+02 -.425E+02 -.153E+03 -.413E+03 -.153E+03
                   -.425E+02 -.515E+02 -.643E+01 -.435E-02 -.949E-02 -.361E-01
                   -.161E+00 -.309E+00 -.161E+00 -.361E-01 -.949E-02 -.435E-02

time =  .12000E+02 -.667E+01 -.523E+02 -.422E+02 -.153E+03 -.414E+03 -.153E+03
                   -.422E+02 -.523E+02 -.667E+01 -.436E-02 -.957E-02 -.365E-01
                   -.162E+00 -.312E+00 -.162E+00 -.365E-01 -.957E-02 -.436E-02

time =  .12250E+02 -.690E+01 -.531E+02 -.420E+02 -.154E+03 -.416E+03 -.154E+03
                   -.420E+02 -.531E+02 -.690E+01 -.436E-02 -.965E-02 -.370E-01
                   -.164E+00 -.314E+00 -.164E+00 -.370E-01 -.965E-02 -.436E-02

time =  .12500E+02 -.710E+01 -.538E+02 -.418E+02 -.154E+03 -.417E+03 -.154E+03
                   -.418E+02 -.538E+02 -.710E+01 -.437E-02 -.973E-02 -.374E-01
                   -.165E+00 -.317E+00 -.165E+00 -.374E-01 -.973E-02 -.437E-02

time =  .12750E+02 -.730E+01 -.544E+02 -.416E+02 -.154E+03 -.418E+03 -.154E+03
                   -.416E+02 -.544E+02 -.730E+01 -.438E-02 -.980E-02 -.378E-01
                   -.166E+00 -.319E+00 -.166E+00 -.378E-01 -.980E-02 -.438E-02

time =  .13000E+02 -.747E+01 -.550E+02 -.414E+02 -.154E+03 -.418E+03 -.154E+03
                   -.414E+02 -.550E+02 -.747E+01 -.438E-02 -.987E-02 -.381E-01
                   -.167E+00 -.321E+00 -.167E+00 -.381E-01 -.987E-02 -.438E-02
```

```
time =  .13250E+02 -.764E+01 -.555E+02 -.412E+02 -.155E+03 -.419E+03 -.155E+03
                   -.412E+02 -.555E+02 -.764E+01 -.439E-02 -.993E-02 -.384E-01
                   -.169E+00 -.322E+00 -.169E+00 -.384E-01 -.993E-02 -.439E-02

time =  .13500E+02 -.779E+01 -.560E+02 -.411E+02 -.155E+03 -.420E+03 -.155E+03
                   -.411E+02 -.560E+02 -.779E+01 -.440E-02 -.999E-02 -.387E-01
                   -.170E+00 -.324E+00 -.170E+00 -.387E-01 -.999E-02 -.440E-02

time =  .13750E+02 -.794E+01 -.565E+02 -.409E+02 -.155E+03 -.421E+03 -.155E+03
                   -.409E+02 -.565E+02 -.794E+01 -.441E-02 -.101E-01 -.390E-01
                   -.170E+00 -.325E+00 -.170E+00 -.390E-01 -.101E-01 -.441E-02

time =  .14000E+02 -.807E+01 -.569E+02 -.408E+02 -.155E+03 -.421E+03 -.155E+03
                   -.408E+02 -.569E+02 -.807E+01 -.442E-02 -.101E-01 -.393E-01
                   -.171E+00 -.327E+00 -.171E+00 -.393E-01 -.101E-01 -.442E-02

time =  .14250E+02 -.819E+01 -.573E+02 -.407E+02 -.155E+03 -.422E+03 -.155E+03
                   -.407E+02 -.573E+02 -.819E+01 -.442E-02 -.102E-01 -.395E-01
                   -.172E+00 -.328E+00 -.172E+00 -.395E-01 -.102E-01 -.442E-02

time =  .14500E+02 -.830E+01 -.577E+02 -.406E+02 -.155E+03 -.422E+03 -.155E+03
                   -.406E+02 -.577E+02 -.830E+01 -.443E-02 -.102E-01 -.397E-01
                   -.173E+00 -.329E+00 -.173E+00 -.397E-01 -.102E-01 -.443E-02

time =  .14750E+02 -.840E+01 -.580E+02 -.405E+02 -.156E+03 -.423E+03 -.156E+03
                   -.405E+02 -.580E+02 -.840E+01 -.444E-02 -.102E-01 -.399E-01
                   -.173E+00 -.330E+00 -.173E+00 -.399E-01 -.102E-01 -.444E-02

time =  .15000E+02 -.849E+01 -.584E+02 -.404E+02 -.156E+03 -.423E+03 -.156E+03
                   -.404E+02 -.584E+02 -.849E+01 -.444E-02 -.103E-01 -.401E-01
                   -.174E+00 -.331E+00 -.174E+00 -.401E-01 -.103E-01 -.444E-02

time =  .15250E+02 -.858E+01 -.586E+02 -.403E+02 -.156E+03 -.424E+03 -.156E+03
                   -.403E+02 -.586E+02 -.858E+01 -.445E-02 -.103E-01 -.403E-01
                   -.175E+00 -.332E+00 -.175E+00 -.403E-01 -.103E-01 -.445E-02

time =  .15500E+02 -.866E+01 -.589E+02 -.402E+02 -.156E+03 -.424E+03 -.156E+03
                   -.402E+02 -.589E+02 -.866E+01 -.445E-02 -.104E-01 -.405E-01
                   -.175E+00 -.333E+00 -.175E+00 -.405E-01 -.104E-01 -.445E-02

time =  .15750E+02 -.873E+01 -.592E+02 -.401E+02 -.156E+03 -.424E+03 -.156E+03
                   -.401E+02 -.592E+02 -.873E+01 -.446E-02 -.104E-01 -.406E-01
                   -.176E+00 -.334E+00 -.176E+00 -.406E-01 -.104E-01 -.446E-02

time =  .16000E+02 -.879E+01 -.594E+02 -.400E+02 -.156E+03 -.425E+03 -.156E+03
                   -.400E+02 -.594E+02 -.879E+01 -.446E-02 -.104E-01 -.408E-01
                   -.176E+00 -.335E+00 -.176E+00 -.408E-01 -.104E-01 -.446E-02

time =  .16250E+02 -.886E+01 -.596E+02 -.400E+02 -.156E+03 -.425E+03 -.156E+03
                   -.400E+02 -.596E+02 -.886E+01 -.447E-02 -.104E-01 -.409E-01
                   -.177E+00 -.335E+00 -.177E+00 -.409E-01 -.104E-01 -.447E-02

time =  .16500E+02 -.891E+01 -.598E+02 -.399E+02 -.156E+03 -.425E+03 -.156E+03
                   -.399E+02 -.598E+02 -.891E+01 -.447E-02 -.105E-01 -.410E-01
                   -.177E+00 -.336E+00 -.177E+00 -.410E-01 -.105E-01 -.447E-02

time =  .16750E+02 -.896E+01 -.600E+02 -.398E+02 -.156E+03 -.425E+03 -.156E+03
                   -.398E+02 -.600E+02 -.896E+01 -.447E-02 -.105E-01 -.411E-01
                   -.177E+00 -.337E+00 -.177E+00 -.411E-01 -.105E-01 -.447E-02
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time =  .17000E+02 -.901E+01 -.601E+02 -.398E+02 -.156E+03 -.426E+03 -.156E+03
                   -.398E+02 -.601E+02 -.901E+01 -.448E-02 -.105E-01 -.412E-01
                   -.178E+00 -.337E+00 -.178E+00 -.412E-01 -.105E-01 -.448E-02

time =  .17250E+02 -.906E+01 -.603E+02 -.397E+02 -.156E+03 -.426E+03 -.156E+03
                   -.397E+02 -.603E+02 -.906E+01 -.448E-02 -.105E-01 -.413E-01
                   -.178E+00 -.338E+00 -.178E+00 -.413E-01 -.105E-01 -.448E-02

time =  .17500E+02 -.910E+01 -.604E+02 -.397E+02 -.157E+03 -.426E+03 -.157E+03
                   -.397E+02 -.604E+02 -.910E+01 -.448E-02 -.105E-01 -.414E-01
                   -.178E+00 -.338E+00 -.178E+00 -.414E-01 -.105E-01 -.448E-02

time =  .17750E+02 -.913E+01 -.606E+02 -.396E+02 -.157E+03 -.426E+03 -.157E+03
                   -.396E+02 -.606E+02 -.913E+01 -.449E-02 -.106E-01 -.415E-01
                   -.178E+00 -.338E+00 -.178E+00 -.415E-01 -.106E-01 -.449E-02

time =  .18000E+02 -.917E+01 -.607E+02 -.396E+02 -.157E+03 -.426E+03 -.157E+03
                   -.396E+02 -.607E+02 -.917E+01 -.449E-02 -.106E-01 -.416E-01
                   -.179E+00 -.339E+00 -.179E+00 -.416E-01 -.106E-01 -.449E-02

time =  .18250E+02 -.920E+01 -.608E+02 -.396E+02 -.157E+03 -.427E+03 -.157E+03
                   -.396E+02 -.608E+02 -.920E+01 -.449E-02 -.106E-01 -.416E-01
                   -.179E+00 -.339E+00 -.179E+00 -.416E-01 -.106E-01 -.449E-02

time =  .18500E+02 -.923E+01 -.609E+02 -.395E+02 -.157E+03 -.427E+03 -.157E+03
                   -.395E+02 -.609E+02 -.923E+01 -.449E-02 -.106E-01 -.417E-01
                   -.179E+00 -.339E+00 -.179E+00 -.417E-01 -.106E-01 -.449E-02

time =  .18750E+02 -.926E+01 -.610E+02 -.395E+02 -.157E+03 -.427E+03 -.157E+03
                   -.395E+02 -.610E+02 -.926E+01 -.449E-02 -.106E-01 -.418E-01
                   -.179E+00 -.340E+00 -.179E+00 -.418E-01 -.106E-01 -.449E-02

time =  .19000E+02 -.928E+01 -.611E+02 -.395E+02 -.157E+03 -.427E+03 -.157E+03
                   -.395E+02 -.611E+02 -.928E+01 -.450E-02 -.106E-01 -.418E-01
                   -.180E+00 -.340E+00 -.180E+00 -.418E-01 -.106E-01 -.450E-02

time =  .19250E+02 -.930E+01 -.612E+02 -.394E+02 -.157E+03 -.427E+03 -.157E+03
                   -.394E+02 -.612E+02 -.930E+01 -.450E-02 -.106E-01 -.419E-01
                   -.180E+00 -.340E+00 -.180E+00 -.419E-01 -.106E-01 -.450E-02

time =  .19500E+02 -.933E+01 -.613E+02 -.394E+02 -.157E+03 -.427E+03 -.157E+03
                   -.394E+02 -.613E+02 -.933E+01 -.450E-02 -.106E-01 -.419E-01
                   -.180E+00 -.341E+00 -.180E+00 -.419E-01 -.106E-01 -.450E-02

time =  .19750E+02 -.934E+01 -.613E+02 -.394E+02 -.157E+03 -.427E+03 -.157E+03
                   -.394E+02 -.613E+02 -.934E+01 -.450E-02 -.107E-01 -.420E-01
                   -.180E+00 -.341E+00 -.180E+00 -.420E-01 -.107E-01 -.450E-02

time =  .20000E+02 -.936E+01 -.614E+02 -.394E+02 -.157E+03 -.427E+03 -.157E+03
                   -.394E+02 -.614E+02 -.936E+01 -.450E-02 -.107E-01 -.420E-01
                   -.180E+00 -.341E+00 -.180E+00 -.420E-01 -.107E-01 -.450E-02

time =  .20250E+02 -.938E+01 -.615E+02 -.393E+02 -.157E+03 -.428E+03 -.157E+03
                   -.393E+02 -.615E+02 -.938E+01 -.450E-02 -.107E-01 -.420E-01
                   -.180E+00 -.341E+00 -.180E+00 -.420E-01 -.107E-01 -.450E-02

time =  .20500E+02 -.940E+01 -.615E+02 -.393E+02 -.157E+03 -.428E+03 -.157E+03
                   -.393E+02 -.615E+02 -.940E+01 -.450E-02 -.107E-01 -.421E-01
                   -.180E+00 -.341E+00 -.180E+00 -.421E-01 -.107E-01 -.450E-02
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```
time =  .20750E+02 -.941E+01 -.616E+02 -.393E+02 -.157E+03 -.428E+03 -.157E+03
                   -.393E+02 -.616E+02 -.941E+01 -.450E-02 -.107E-01 -.421E-01
                   -.180E+00 -.342E+00 -.180E+00 -.421E-01 -.107E-01 -.450E-02

time =  .21000E+02 -.942E+01 -.616E+02 -.393E+02 -.157E+03 -.428E+03 -.157E+03
                   -.393E+02 -.616E+02 -.942E+01 -.450E-02 -.107E-01 -.421E-01
                   -.181E+00 -.342E+00 -.181E+00 -.421E-01 -.107E-01 -.450E-02

time =  .21250E+02 -.944E+01 -.617E+02 -.393E+02 -.157E+03 -.428E+03 -.157E+03
                   -.393E+02 -.617E+02 -.944E+01 -.451E-02 -.107E-01 -.422E-01
                   -.181E+00 -.342E+00 -.181E+00 -.422E-01 -.107E-01 -.451E-02

time =  .21500E+02 -.945E+01 -.617E+02 -.393E+02 -.157E+03 -.428E+03 -.157E+03
                   -.393E+02 -.617E+02 -.945E+01 -.451E-02 -.107E-01 -.422E-01
                   -.181E+00 -.342E+00 -.181E+00 -.422E-01 -.107E-01 -.451E-02

time =  .21750E+02 -.946E+01 -.617E+02 -.392E+02 -.157E+03 -.428E+03 -.157E+03
                   -.392E+02 -.617E+02 -.946E+01 -.451E-02 -.107E-01 -.422E-01
                   -.181E+00 -.342E+00 -.181E+00 -.422E-01 -.107E-01 -.451E-02

time =  .22000E+02 -.947E+01 -.618E+02 -.392E+02 -.157E+03 -.428E+03 -.157E+03
                   -.392E+02 -.618E+02 -.947E+01 -.451E-02 -.107E-01 -.422E-01
                   -.181E+00 -.342E+00 -.181E+00 -.422E-01 -.107E-01 -.451E-02

time =  .22250E+02 -.948E+01 -.618E+02 -.392E+02 -.157E+03 -.428E+03 -.157E+03
                   -.392E+02 -.618E+02 -.948E+01 -.451E-02 -.107E-01 -.422E-01
                   -.181E+00 -.342E+00 -.181E+00 -.422E-01 -.107E-01 -.451E-02

time =  .22500E+02 -.948E+01 -.618E+02 -.392E+02 -.157E+03 -.428E+03 -.157E+03
                   -.392E+02 -.618E+02 -.948E+01 -.451E-02 -.107E-01 -.423E-01
                   -.181E+00 -.342E+00 -.181E+00 -.423E-01 -.107E-01 -.451E-02

time =  .22750E+02 -.949E+01 -.619E+02 -.392E+02 -.157E+03 -.428E+03 -.157E+03
                   -.392E+02 -.619E+02 -.949E+01 -.451E-02 -.107E-01 -.423E-01
                   -.181E+00 -.342E+00 -.181E+00 -.423E-01 -.107E-01 -.451E-02

time =  .23000E+02 -.950E+01 -.619E+02 -.392E+02 -.157E+03 -.428E+03 -.157E+03
                   -.392E+02 -.619E+02 -.950E+01 -.451E-02 -.107E-01 -.423E-01
                   -.181E+00 -.343E+00 -.181E+00 -.423E-01 -.107E-01 -.451E-02

time =  .23250E+02 -.951E+01 -.619E+02 -.392E+02 -.157E+03 -.428E+03 -.157E+03
                   -.392E+02 -.619E+02 -.951E+01 -.451E-02 -.107E-01 -.423E-01
                   -.181E+00 -.343E+00 -.181E+00 -.423E-01 -.107E-01 -.451E-02

time =  .23500E+02 -.951E+01 -.619E+02 -.392E+02 -.157E+03 -.428E+03 -.157E+03
                   -.392E+02 -.619E+02 -.951E+01 -.451E-02 -.107E-01 -.423E-01
                   -.181E+00 -.343E+00 -.181E+00 -.423E-01 -.107E-01 -.451E-02

time =  .23750E+02 -.952E+01 -.619E+02 -.392E+02 -.157E+03 -.428E+03 -.157E+03
                   -.392E+02 -.619E+02 -.952E+01 -.451E-02 -.107E-01 -.423E-01
                   -.181E+00 -.343E+00 -.181E+00 -.423E-01 -.107E-01 -.451E-02

time =  .24000E+02 -.952E+01 -.620E+02 -.392E+02 -.157E+03 -.428E+03 -.157E+03
                   -.392E+02 -.620E+02 -.952E+01 -.451E-02 -.107E-01 -.424E-01
                   -.181E+00 -.343E+00 -.181E+00 -.424E-01 -.107E-01 -.451E-02

time =  .24250E+02 -.953E+01 -.620E+02 -.392E+02 -.157E+03 -.428E+03 -.157E+03
                   -.392E+02 -.620E+02 -.953E+01 -.451E-02 -.107E-01 -.424E-01
                   -.181E+00 -.343E+00 -.181E+00 -.424E-01 -.107E-01 -.451E-02
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time =  .24500E+02 -.953E+01 -.620E+02 -.392E+02 -.157E+03 -.428E+03 -.157E+03
                   -.392E+02 -.620E+02 -.953E+01 -.451E-02 -.107E-01 -.424E-01
                   -.181E+00 -.343E+00 -.181E+00 -.424E-01 -.107E-01 -.451E-02

time =  .24750E+02 -.954E+01 -.620E+02 -.391E+02 -.157E+03 -.428E+03 -.157E+03
                   -.391E+02 -.620E+02 -.954E+01 -.451E-02 -.107E-01 -.424E-01
                   -.181E+00 -.343E+00 -.181E+00 -.424E-01 -.107E-01 -.451E-02

time =  .25000E+02 -.954E+01 -.620E+02 -.391E+02 -.157E+03 -.428E+03 -.157E+03
                   -.391E+02 -.620E+02 -.954E+01 -.451E-02 -.107E-01 -.424E-01
                   -.181E+00 -.343E+00 -.181E+00 -.424E-01 -.107E-01 -.451E-02

time =  .25250E+02 -.954E+01 -.620E+02 -.391E+02 -.157E+03 -.428E+03 -.157E+03
                   -.391E+02 -.620E+02 -.954E+01 -.451E-02 -.107E-01 -.424E-01
                   -.181E+00 -.343E+00 -.181E+00 -.424E-01 -.107E-01 -.451E-02

time =  .25500E+02 -.955E+01 -.621E+02 -.391E+02 -.157E+03 -.428E+03 -.157E+03
                   -.391E+02 -.621E+02 -.955E+01 -.451E-02 -.107E-01 -.424E-01
                   -.181E+00 -.343E+00 -.181E+00 -.424E-01 -.107E-01 -.451E-02

time =  .25750E+02 -.955E+01 -.621E+02 -.391E+02 -.157E+03 -.428E+03 -.157E+03
                   -.391E+02 -.621E+02 -.955E+01 -.451E-02 -.108E-01 -.424E-01
                   -.181E+00 -.343E+00 -.181E+00 -.424E-01 -.108E-01 -.451E-02

time =  .26000E+02 -.955E+01 -.621E+02 -.391E+02 -.157E+03 -.428E+03 -.157E+03
                   -.391E+02 -.621E+02 -.955E+01 -.451E-02 -.108E-01 -.424E-01
                   -.181E+00 -.343E+00 -.181E+00 -.424E-01 -.108E-01 -.451E-02

time =  .26250E+02 -.956E+01 -.621E+02 -.391E+02 -.157E+03 -.428E+03 -.157E+03
                   -.391E+02 -.621E+02 -.956E+01 -.451E-02 -.108E-01 -.424E-01
                   -.181E+00 -.343E+00 -.181E+00 -.424E-01 -.108E-01 -.451E-02

time =  .26500E+02 -.956E+01 -.621E+02 -.391E+02 -.157E+03 -.428E+03 -.157E+03
                   -.391E+02 -.621E+02 -.956E+01 -.451E-02 -.108E-01 -.424E-01
                   -.181E+00 -.343E+00 -.181E+00 -.424E-01 -.108E-01 -.451E-02

time =  .26750E+02 -.956E+01 -.621E+02 -.391E+02 -.157E+03 -.428E+03 -.157E+03
                   -.391E+02 -.621E+02 -.956E+01 -.451E-02 -.108E-01 -.424E-01
                   -.182E+00 -.343E+00 -.182E+00 -.424E-01 -.108E-01 -.451E-02

time =  .27000E+02 -.956E+01 -.621E+02 -.391E+02 -.157E+03 -.428E+03 -.157E+03
                   -.391E+02 -.621E+02 -.956E+01 -.451E-02 -.108E-01 -.424E-01
                   -.182E+00 -.343E+00 -.182E+00 -.424E-01 -.108E-01 -.451E-02

time =  .27250E+02 -.957E+01 -.621E+02 -.391E+02 -.157E+03 -.428E+03 -.157E+03
                   -.391E+02 -.621E+02 -.957E+01 -.452E-02 -.108E-01 -.424E-01
                   -.182E+00 -.343E+00 -.182E+00 -.424E-01 -.108E-01 -.452E-02

time =  .27500E+02 -.957E+01 -.621E+02 -.391E+02 -.157E+03 -.428E+03 -.157E+03
                   -.391E+02 -.621E+02 -.957E+01 -.452E-02 -.108E-01 -.424E-01
                   -.182E+00 -.343E+00 -.182E+00 -.424E-01 -.108E-01 -.452E-02

time =  .27750E+02 -.957E+01 -.621E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.621E+02 -.957E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.343E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .28000E+02 -.957E+01 -.621E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.621E+02 -.957E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.343E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02
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time =  .28250E+02 -.957E+01 -.621E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.621E+02 -.957E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.343E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .28500E+02 -.957E+01 -.621E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.621E+02 -.957E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.343E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .28750E+02 -.957E+01 -.621E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.621E+02 -.957E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.343E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .29000E+02 -.958E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.958E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.343E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .29250E+02 -.958E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.958E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.343E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .29500E+02 -.958E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.958E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.343E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .29750E+02 -.958E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.958E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.343E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .30000E+02 -.958E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.958E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.343E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .30250E+02 -.958E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.958E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.343E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .30500E+02 -.958E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.958E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.343E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .30750E+02 -.958E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.958E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .31000E+02 -.958E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.958E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .31250E+02 -.958E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.958E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .31500E+02 -.958E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.958E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .31750E+02 -.958E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.958E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02
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time =  .32000E+02 -.958E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.958E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .32250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .32500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .32750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .33000E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .33250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .33500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .33750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .34000E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .34250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .34500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .34750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .35000E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .35250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .35500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02
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time =  .35750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .36000E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .36250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .36500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .36750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .37000E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .37250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .37500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .37750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .38000E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .38250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .38500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .38750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .39000E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .39250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02
```

```
time =  .39500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .39750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .40000E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .40250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .40500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .40750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .41000E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .41250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .41500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .41750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .42000E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .42250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .42500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .42750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .43000E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02
```

```
time =  .43250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .43500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .43750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .44000E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .44250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .44500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .44750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .45000E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .45250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .45500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .45750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .46000E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .46250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .46500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .46750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02
```

```
time =  .47000E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .47250E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .47500E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02

time =  .47750E+02 -.959E+01 -.622E+02 -.391E+02 -.157E+03 -.429E+03 -.157E+03
                   -.391E+02 -.622E+02 -.959E+01 -.452E-02 -.108E-01 -.425E-01
                   -.182E+00 -.344E+00 -.182E+00 -.425E-01 -.108E-01 -.452E-02
```

Input and output of ANSYS

LIST ALL SELECTED ELEMENTS. (LIST NODES)

ELEM	MAT	TYP	REL	ESY	NODES							
1	1	1	1	0	2	20	27	6	55	57	81	80
2	1	1	1	0	20	21	28	27	57	58	85	81
3	1	1	1	0	21	22	29	28	58	59	89	85
4	1	1	1	0	22	23	30	29	59	60	93	89
5	1	1	1	0	23	24	31	30	60	61	97	93
6	1	1	1	0	24	25	32	31	61	62	101	97
7	1	1	1	0	25	26	33	32	62	63	105	101
8	1	1	1	0	26	15	16	33	63	56	65	105
9	1	1	1	0	6	27	34	5	80	81	82	79
10	1	1	1	0	27	28	35	34	81	85	86	82
11	1	1	1	0	28	29	36	35	85	89	90	86
12	1	1	1	0	29	30	37	36	89	93	94	90
13	1	1	1	0	30	31	38	37	93	97	98	94
14	1	1	1	0	31	32	39	38	97	101	102	98
15	1	1	1	0	32	33	40	39	101	105	106	102
16	1	1	1	0	33	16	17	40	105	65	66	106
17	1	1	1	0	5	34	41	4	79	82	83	78
18	1	1	1	0	34	35	42	41	82	86	87	83
19	1	1	1	0	35	36	43	42	86	90	91	87
20	1	1	1	0	36	37	44	43	90	94	95	91

ELEM	MAT	TYP	REL	ESY	NODES							
21	1	1	1	0	37	38	45	44	94	98	99	95
22	1	1	1	0	38	39	46	45	98	102	103	99
23	1	1	1	0	39	40	47	46	102	106	107	103
24	1	1	1	0	40	17	18	47	106	66	67	107
25	1	1	1	0	4	41	48	3	78	83	84	77
26	1	1	1	0	41	42	49	48	83	87	88	84
27	1	1	1	0	42	43	50	49	87	91	92	88
28	1	1	1	0	43	44	51	50	91	95	96	92
29	1	1	1	0	44	45	52	51	95	99	100	96
30	1	1	1	0	45	46	53	52	99	103	104	100
31	1	1	1	0	46	47	54	53	103	107	108	104
32	1	1	1	0	47	18	19	54	107	67	68	108
33	1	1	1	0	3	48	14	1	77	84	76	69
34	1	1	1	0	48	49	13	14	84	88	75	76
35	1	1	1	0	49	50	12	13	88	92	74	75
36	1	1	1	0	50	51	11	12	92	96	73	74
37	1	1	1	0	51	52	10	11	96	100	72	73
38	1	1	1	0	52	53	9	10	100	104	71	72
39	1	1	1	0	53	54	8	9	104	108	70	71
40	1	1	1	0	54	19	7	8	108	68	64	70

***** INDEX OF DATA SETS ON RESULTS FILE *****

SET	TIME/FREQ	LOAD STEP	SUBSTEP	CUMULATIVE
1	0.75000	1	1	1
2	1.5000	1	2	2
3	3.0000	1	3	6
4	4.5000	1	4	10
5	5.5032	1	5	14
6	6.5065	1	6	17
7	7.5000	1	7	20

PRINT U NODAL SOLUTION PER NODE

***** POST1 NODAL DEGREE OF FREEDOM LISTING *****

LOAD STEP= 1 SUBSTEP= 7
TIME= 7.5000 LOAD CASE= 0

THE FOLLOWING DEGREE OF FREEDOM RESULTS ARE IN GLOBAL COORDINATES

NODE	UY
1	-0.54995E-02
2	0.
3	-0.60866E-02
4	-0.84529E-02
5	-0.83062E-02
6	-0.51872E-02
7	-0.54995E-02
8	-0.11740E-01
9	-0.39686E-01
10	-0.26677
11	-0.55619
12	-0.26677
13	-0.39686E-01
14	-0.11740E-01
15	0.
16	-0.51872E-02
17	-0.83062E-02
18	-0.84529E-02
19	-0.60866E-02
20	0.
21	0.
22	0.
23	0.
24	0.
25	0.
26	0.
27	-0.60300E-02
28	-0.74838E-02
29	-0.10081E-01
30	-0.11789E-01
31	-0.10081E-01
32	-0.74838E-02
33	-0.60300E-02
34	-0.10622E-01
35	-0.17744E-01
36	-0.33897E-01
37	-0.43517E-01

***** POST1 NODAL DEGREE OF FREEDOM LISTING *****

LOAD STEP= 1 SUBSTEP= 7
TIME= 7.5000 LOAD CASE= 0

THE FOLLOWING DEGREE OF FREEDOM RESULTS ARE IN GLOBAL COORDINATES

NODE	UY
38	-0.33897E-01
39	-0.17744E-01
40	-0.10622E-01
41	-0.11554E-01
42	-0.33953E-01
43	-0.90023E-01
44	-0.10977
45	-0.90023E-01
46	-0.33953E-01

47	-0.11554E-01
48	-0.10796E-01
49	-0.39517E-01
50	-0.17238
51	-0.29569
52	-0.17238
53	-0.39517E-01
54	-0.10796E-01
55	0.
56	0.
57	0.
58	0.
59	0.
60	0.
61	0.
62	0.
63	0.
64	-0.54995E-02
65	-0.51872E-02
66	-0.83062E-02
67	-0.84529E-02
68	-0.60866E-02
69	-0.54995E-02
70	-0.11740E-01
71	-0.39686E-01
72	-0.26677
73	-0.55619
74	-0.26677

***** POST1 NODAL DEGREE OF FREEDOM LISTING *****

LOAD STEP= 1 SUBSTEP= 7
TIME= 7.5000 LOAD CASE= 0

THE FOLLOWING DEGREE OF FREEDOM RESULTS ARE IN GLOBAL COORDINATES

NODE	UY
75	-0.39686E-01
76	-0.11740E-01
77	-0.60866E-02
78	-0.84529E-02
79	-0.83062E-02
80	-0.51872E-02
81	-0.60300E-02
82	-0.10622E-01
83	-0.11554E-01
84	-0.10796E-01
85	-0.74838E-02
86	-0.17744E-01
87	-0.33953E-01
88	-0.39517E-01
89	-0.10081E-01
90	-0.33897E-01
91	-0.90023E-01
92	-0.17238
93	-0.11789E-01
94	-0.43517E-01
95	-0.10977
96	-0.29569
97	-0.10081E-01
98	-0.33897E-01
99	-0.90023E-01
100	-0.17238
101	-0.74838E-02
102	-0.17744E-01
103	-0.33953E-01

```
   104 -0.39517E-01
   105 -0.60300E-02
   106 -0.10622E-01
   107 -0.11554E-01
   108 -0.10796E-01

 ***** POST1 NODAL DEGREE OF FREEDOM LISTING *****

 LOAD STEP=     1  SUBSTEP=     7
  TIME=    7.5000       LOAD CASE=    0

 THE FOLLOWING DEGREE OF FREEDOM RESULTS ARE IN GLOBAL COORDINATES

  NODE       UY

MAXIMUM ABSOLUTE VALUES
NODE         11
VALUE  -0.55619
```

PRINT S NODAL SOLUTION PER NODE

***** POST1 NODAL STRESS LISTING *****

LOAD STEP= 1 SUBSTEP= 7
TIME= 7.5000 LOAD CASE= 0
SHELL DATA ARE AT TOP

THE FOLLOWING X,Y,Z VALUES ARE IN GLOBAL COORDINATES

NODE	SX	SY	SZ	SXY	SYZ	SXZ
1	127.67	20.323	9.6364	7.7045	-2.4900	2.4900
2	-46.019	-100.14	-43.846	-9.9999	-0.10375	-0.10375
3	-80.554	11.141	-2.7200	-4.1474	-2.3928	-0.97248E-01
4	-123.11	-19.600	-10.771	-19.190	0.74411	-3.0396
5	-95.689	-49.521	1.5191	-19.520	1.6152	2.1685
6	-64.047	-85.067	16.782	-13.330	-0.32851	-0.22476
7	127.67	20.323	9.6364	-7.7045	-2.4900	-2.4900
8	124.42	-6.5983	-8.6858	-2.7715	-2.7925	-5.2825
9	11.779	-65.931	-23.716	49.894	6.1591	-2.4458
10	-148.24	-256.96	-4.3531	89.785	0.14735	2.7290
11	-156.48	-361.24	58.140	0.	-2.9509	0.
12	-148.24	-256.96	-4.3531	-89.785	0.14735	-2.7290
13	11.779	-65.931	-23.716	-49.894	6.1591	2.4458
14	124.42	-6.5983	-8.6858	2.7715	-2.7925	5.2825
15	-46.019	-100.14	-43.846	9.9999	-0.10375	0.10375
16	-64.047	-85.067	16.782	13.330	-0.32851	0.22476
17	-95.689	-49.521	1.5191	19.520	1.6152	-2.1685
18	-123.11	-19.600	-10.771	19.190	0.74411	3.0396
19	-80.554	11.141	-2.7200	4.1474	-2.3928	0.97248E-01
20	-48.288	-112.16	-48.133	-16.726	0.70119	0.59745
21	-49.575	-128.18	-44.276	-23.422	0.20472	1.4315
22	-42.842	-136.96	-27.256	-17.914	-0.49786	1.1043
23	-38.875	-145.27	-23.465	0.	-0.86839	0.
24	-42.842	-136.96	-27.256	17.914	-0.49786	-1.1043
25	-49.575	-128.18	-44.276	23.422	0.20472	-1.4315
26	-48.288	-112.16	-48.133	16.726	0.70119	-0.59745
27	-59.056	-104.84	11.790	-21.813	1.0914	0.25237
28	-48.527	-130.32	8.6512	-31.143	-0.21031E-01	0.41853
29	-39.973	-145.69	1.8332	-21.437	-0.68112	-0.82258E-01
30	-35.383	-153.24	0.56758	0.	-0.39560	0.
31	-39.973	-145.69	1.8332	21.437	-0.68112	0.82258E-01
32	-48.527	-130.32	8.6512	31.143	-0.21031E-01	-0.41853
33	-59.056	-104.84	11.790	21.813	1.0914	-0.25237
34	-90.047	-81.737	-3.3788	-33.949	0.79859	1.5033
35	-75.543	-129.37	-0.33215	-47.379	-0.79967	-0.23690
36	-58.455	-169.79	-2.4961	-31.886	-0.41479	-0.13871

***** POST1 NODAL STRESS LISTING *****

LOAD STEP= 1 SUBSTEP= 7
TIME= 7.5000 LOAD CASE= 0
SHELL DATA ARE AT TOP

THE FOLLOWING X,Y,Z VALUES ARE IN GLOBAL COORDINATES

NODE	SX	SY	SZ	SXY	SYZ	SXZ
37	-57.663	-188.66	-5.3920	0.	-0.51213	0.
38	-58.455	-169.79	-2.4961	31.886	-0.41479	0.13871
39	-75.543	-129.37	-0.33215	47.379	-0.79967	0.23690
40	-90.047	-81.737	-3.3788	33.949	0.79859	-1.5033
41	-117.95	-52.667	4.7902	-38.454	-0.14047	-3.0828
42	-85.410	-103.81	13.698	-65.840	0.46472	-0.50131
43	-69.585	-197.11	4.2372	-56.663	0.38390E-02	0.91253
44	-88.198	-273.19	-23.664	0.	-1.6297	0.

45	-69.585	-197.11	4.2372	56.663	0.38390E-02	-0.91253
46	-85.410	-103.81	13.698	65.840	0.46472	0.50131
47	-117.95	-52.667	4.7902	38.454	-0.14047	3.0828
48	-101.87	-22.165	-4.0041	-16.748	-1.2278	-1.9505
49	-120.24	-70.279	-0.96358	-61.908	3.4070	-1.2498
50	-101.39	-228.74	6.6195	-82.500	-0.34780E-01	0.12232
51	-92.903	-368.69	1.5235	0.	-2.6997	0.
52	-101.39	-228.74	6.6195	82.500	-0.34780E-01	-0.12232
53	-120.24	-70.279	-0.96358	61.908	3.4070	1.2498
54	-101.87	-22.165	-4.0041	16.748	-1.2278	1.9505
55	-46.019	-100.14	-43.846	-9.9999	0.10375	0.10375
56	-46.019	-100.14	-43.846	9.9999	0.10375	-0.10375
57	-48.288	-112.16	-48.133	-16.726	-0.70119	-0.59745
58	-49.575	-128.18	-44.276	-23.422	-0.20472	-1.4315
59	-42.842	-136.96	-27.256	-17.914	0.49786	-1.1043
60	-38.875	-145.27	-23.465	0.	0.86839	0.
61	-42.842	-136.96	-27.256	17.914	0.49786	1.1043
62	-49.575	-128.18	-44.276	23.422	-0.20472	1.4315
63	-48.288	-112.16	-48.133	16.726	-0.70119	0.59745
64	127.67	20.323	9.6364	-7.7045	2.4900	2.4900
65	-64.047	-85.067	16.782	13.330	0.32851	-0.22476
66	-95.689	-49.521	1.5191	19.520	-1.6152	2.1685
67	-123.11	-19.600	-10.771	19.190	-0.74411	-3.0396
68	-80.554	11.141	-2.7200	4.1474	2.3928	-0.97248E-01
69	127.67	20.323	9.6364	7.7045	2.4900	-2.4900
70	124.42	-6.5983	-8.6858	-2.7715	2.7925	5.2825
71	11.779	-65.931	-23.716	49.894	-6.1591	2.4458
72	-148.24	-256.96	-4.3531	89.785	-0.14735	-2.7290

***** POST1 NODAL STRESS LISTING *****

LOAD STEP= 1 SUBSTEP= 7
TIME= 7.5000 LOAD CASE= 0
SHELL DATA ARE AT TOP

THE FOLLOWING X,Y,Z VALUES ARE IN GLOBAL COORDINATES

NODE	SX	SY	SZ	SXY	SYZ	SXZ
73	-156.48	-361.24	58.140	0.	2.9509	0.
74	-148.24	-256.96	-4.3531	-89.785	-0.14735	2.7290
75	11.779	-65.931	-23.716	-49.894	-6.1591	-2.4458
76	124.42	-6.5983	-8.6858	2.7715	2.7925	-5.2825
77	-80.554	11.141	-2.7200	-4.1474	2.3928	0.97248E-01
78	-123.11	-19.600	-10.771	-19.190	-0.74411	3.0396
79	-95.689	-49.521	1.5191	-19.520	-1.6152	-2.1685
80	-64.047	-85.067	16.782	-13.330	0.32851	0.22476
81	-59.056	-104.84	11.790	-21.813	-1.0914	-0.25237
82	-90.047	-81.737	-3.3788	-33.949	-0.79859	-1.5033
83	-117.95	-52.667	4.7902	-38.454	0.14047	3.0828
84	-101.87	-22.165	-4.0041	-16.748	1.2278	1.9505
85	-48.527	-130.32	8.6512	-31.143	0.21031E-01	-0.41853
86	-75.543	-129.37	-0.33215	-47.379	0.79967	0.23690
87	-85.410	-103.81	13.698	-65.840	-0.46472	0.50131
88	-120.24	-70.279	-0.96358	-61.908	-3.4070	1.2498
89	-39.973	-145.69	1.8332	-21.437	0.68112	0.82258E-01
90	-58.455	-169.79	-2.4961	-31.886	0.41479	0.13871
91	-69.585	-197.11	4.2372	-56.663	-0.38390E-02	-0.91253
92	-101.39	-228.74	6.6195	-82.500	0.34780E-01	-0.12232
93	-35.383	-153.24	0.56758	0.	0.39560	0.
94	-57.663	-188.66	-5.3920	0.	0.51213	0.
95	-88.198	-273.19	-23.664	0.	1.6297	0.
96	-92.903	-368.69	1.5235	0.	2.6997	0.
97	-39.973	-145.69	1.8332	21.437	0.68112	-0.82258E-01
98	-58.455	-169.79	-2.4961	31.886	0.41479	-0.13871
99	-69.585	-197.11	4.2372	56.663	-0.38390E-02	0.91253
100	-101.39	-228.74	6.6195	82.500	0.34780E-01	0.12232

101	-48.527	-130.32	8.6512	31.143	0.21031E-01	0.41853
102	-75.543	-129.37	-0.33215	47.379	0.79967	-0.23690
103	-85.410	-103.81	13.698	65.840	-0.46472	-0.50131
104	-120.24	-70.279	-0.96358	61.908	-3.4070	-1.2498
105	-59.056	-104.84	11.790	21.813	-1.0914	0.25237
106	-90.047	-81.737	-3.3788	33.949	-0.79859	1.5033
107	-117.95	-52.667	4.7902	38.454	0.14047	-3.0828
108	-101.87	-22.165	-4.0041	16.748	1.2278	-1.9505

***** POST1 NODAL STRESS LISTING *****

LOAD STEP= 1 SUBSTEP= 7
TIME= 7.5000 LOAD CASE= 0
SHELL DATA ARE AT TOP

THE FOLLOWING X,Y,Z VALUES ARE IN GLOBAL COORDINATES

NODE	SX	SY	SZ	SXY	SYZ	SXZ
MINIMUM VALUES						
NODE	73	51	20	12	71	76
VALUE	-156.48	-368.69	-48.133	-89.785	-6.1591	-5.2825
MAXIMUM VALUES						
NODE	64	1	11	10	13	14
VALUE	127.67	20.323	58.140	89.785	6.1591	5.2825

Problem 3.

A rectangular plate (or half space) of elastic-plastic material subjected to ramp loadings (Drucker-Prager criterion and associated flow rule)

- **Problem description and loading functions**
- **Deflection and stress plots**
- **Input file for Soild3D**
- **Sample output of Soild3D**
- **Input and out of ANSYS program**

Problem description and loading functions

Straight Edge boundary on Drucker-Prager Material

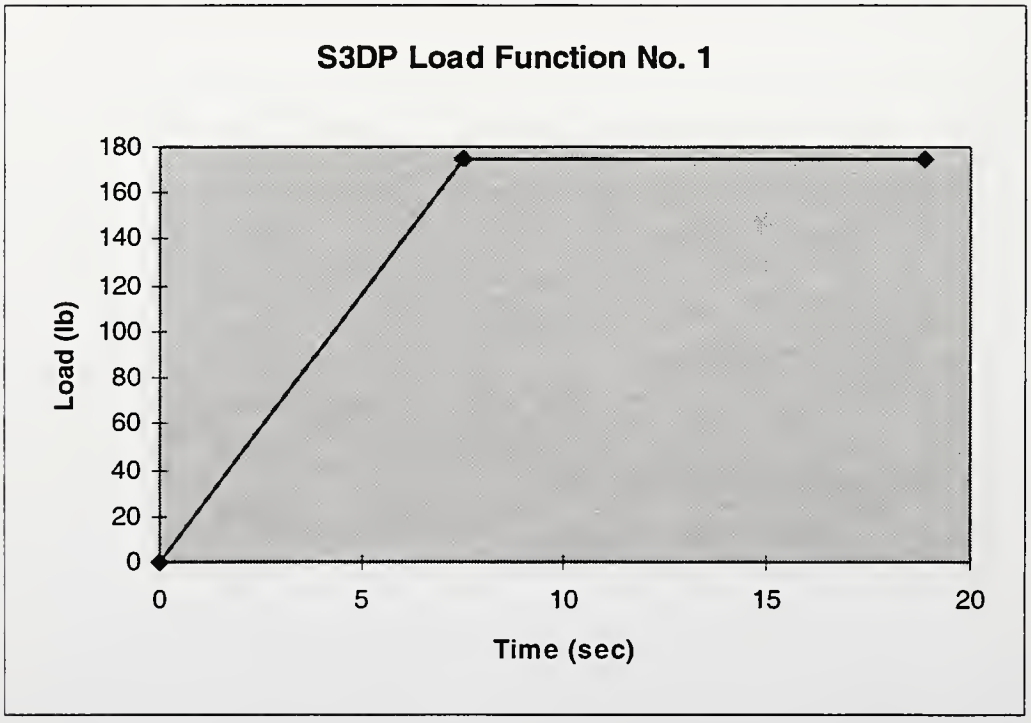
Input:

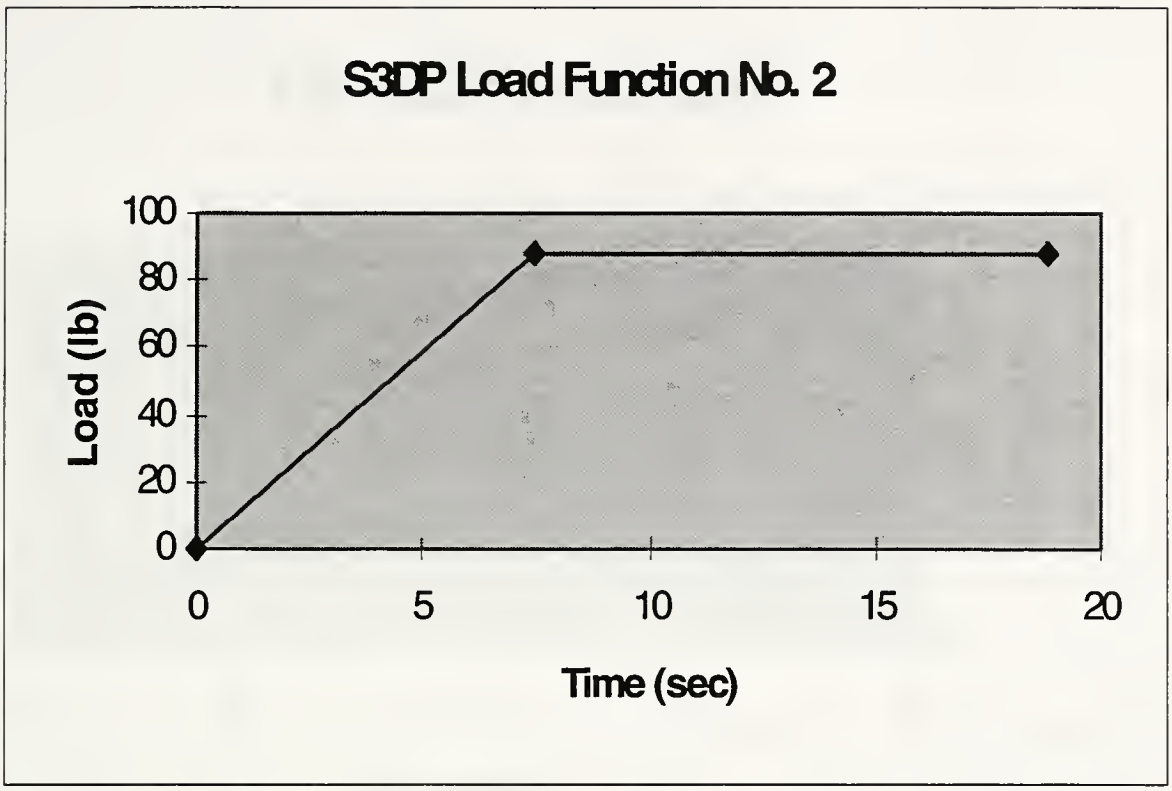
1. Geometry and finite element mesh are shown as previous problem.

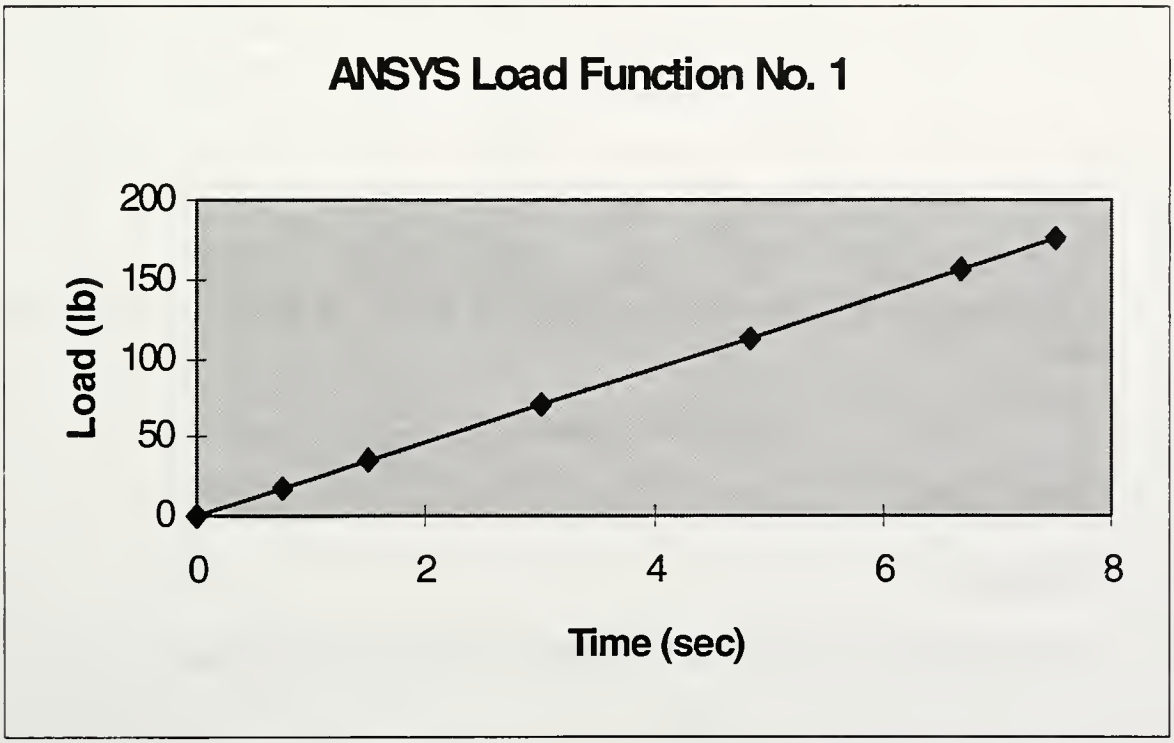
2. Material used in this problem has the following properties:

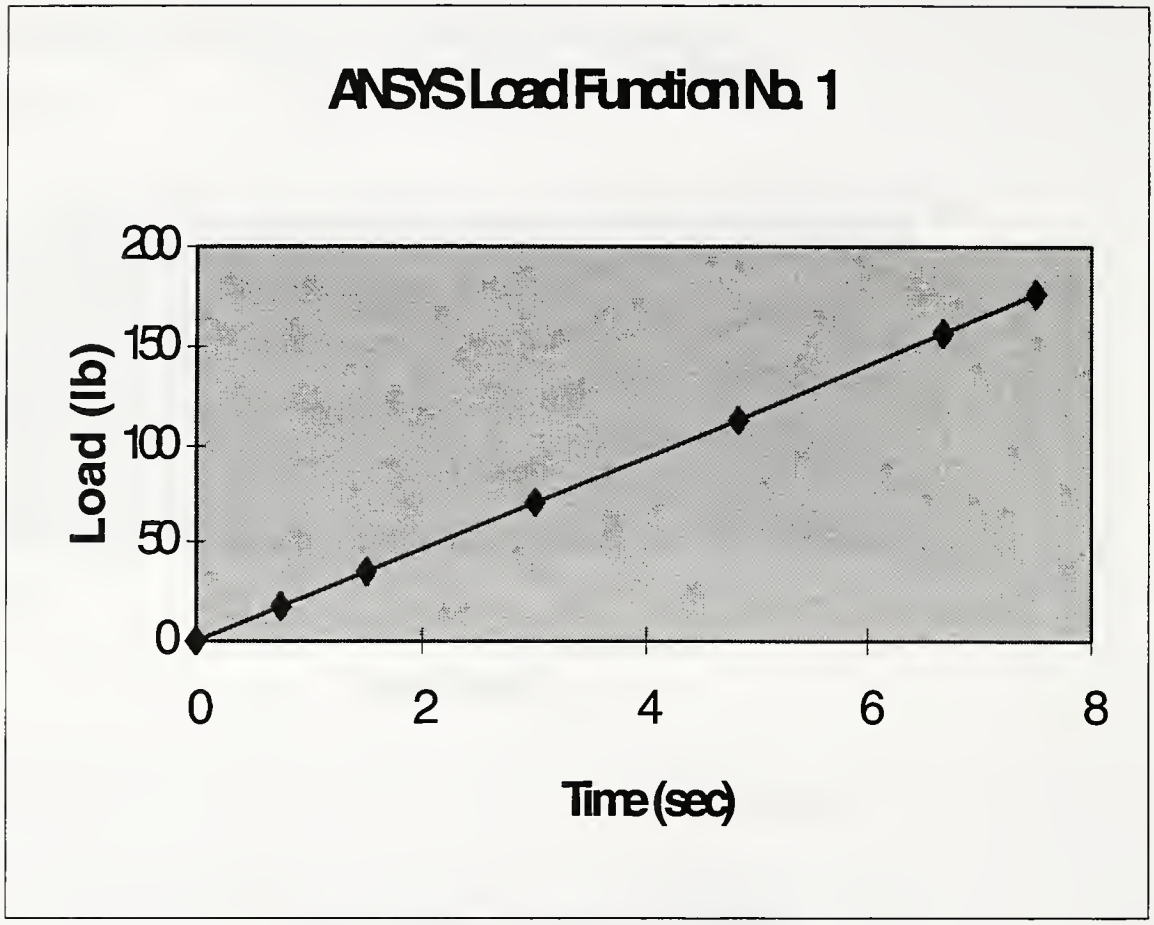
E	=	7,000 psi
υ	=	0.3
ρ	=	2.53e-2 $lb - \sec^2 / in^4$
E_t	=	0 psi
c	=	17 psi (cohesion)
ϕ	=	20 degree
β	=	0.0 (kinematics hardening rule)

3. Loading functions for S3DP and ANSYS are ramp loading functions.




S3DP Load Function No. 2
Load (lb)
100
80
60
40
20
0
0
5
10
15
20
Time (sec)


ANSYS Load Function No. 1
Load (lb)
200
150
100
50
0
0
2
4
6
8
Time (sec)

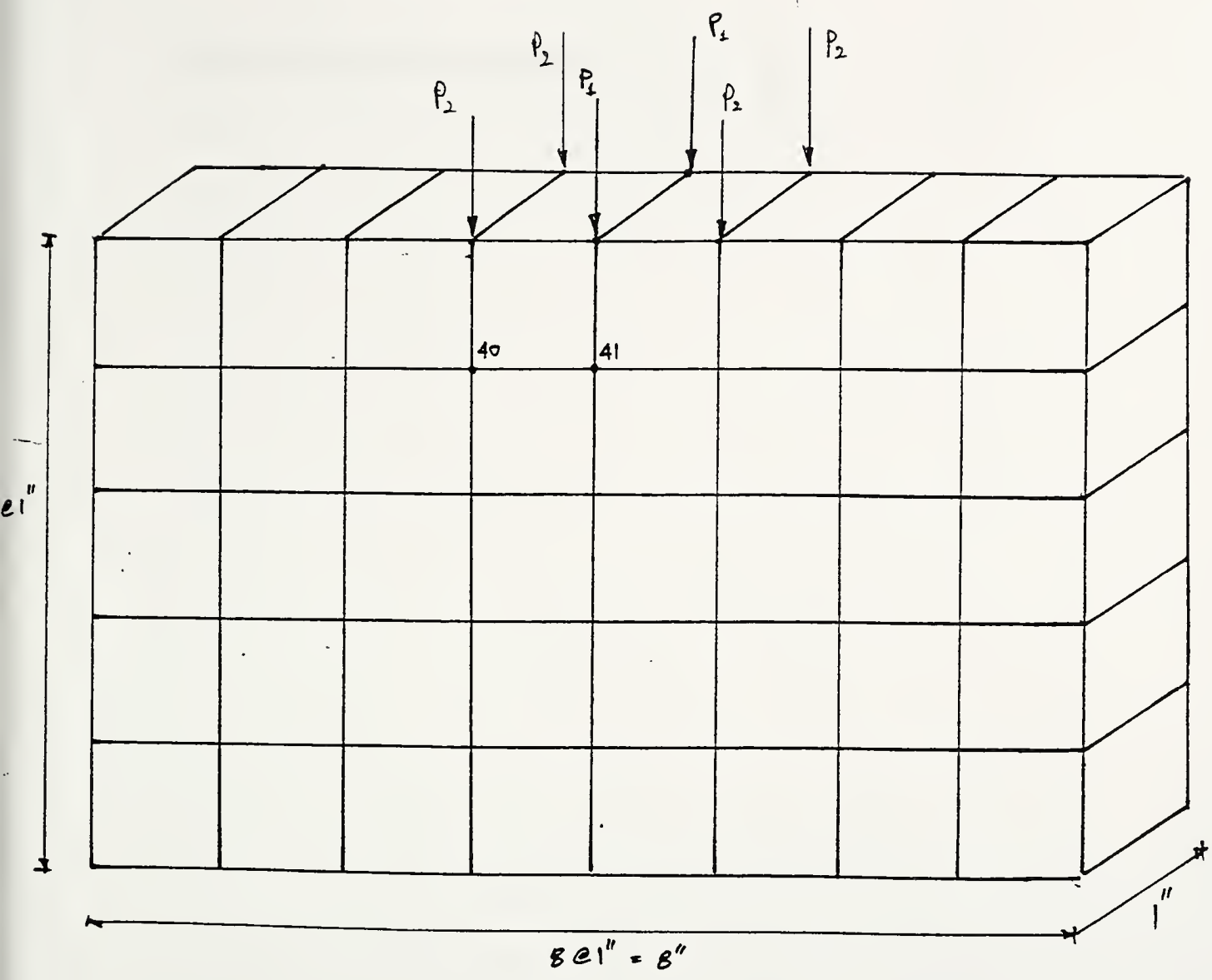


4. The examples for input data of both S3DP and ANSYS are shown after the problem results

Problem Results

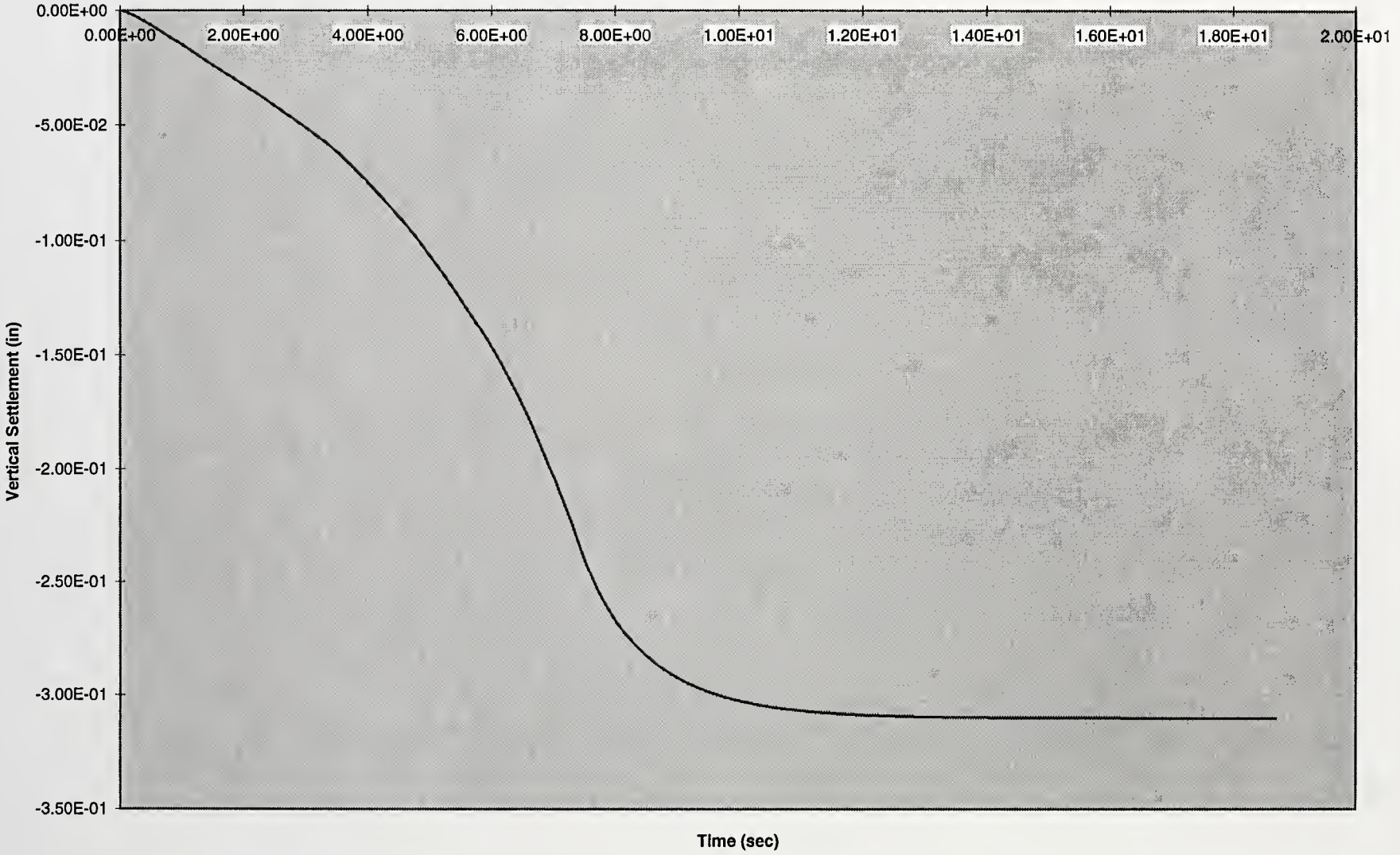
S3D Results:

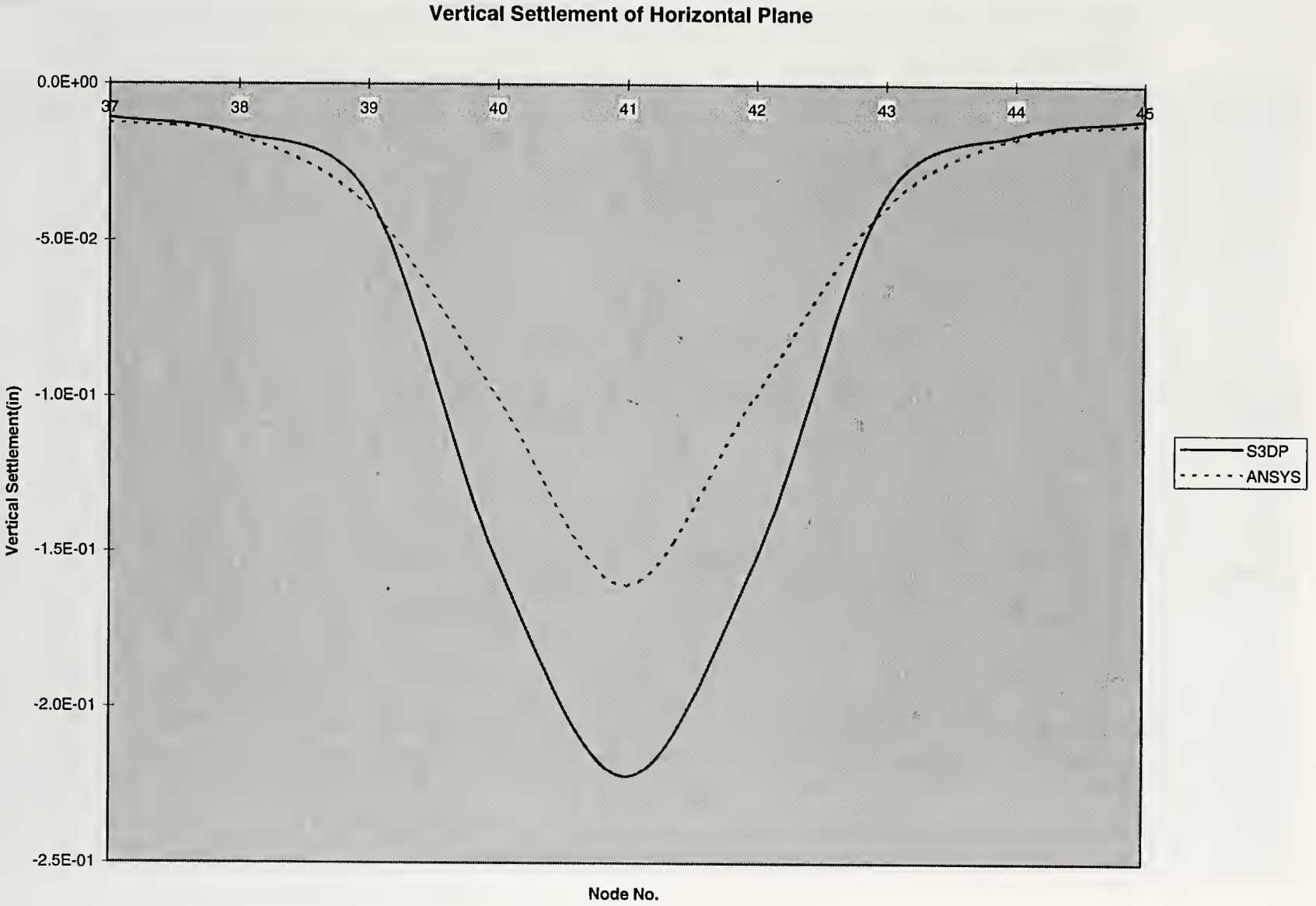
1. The Settlement of node no. 50 versus time are shown as the following.

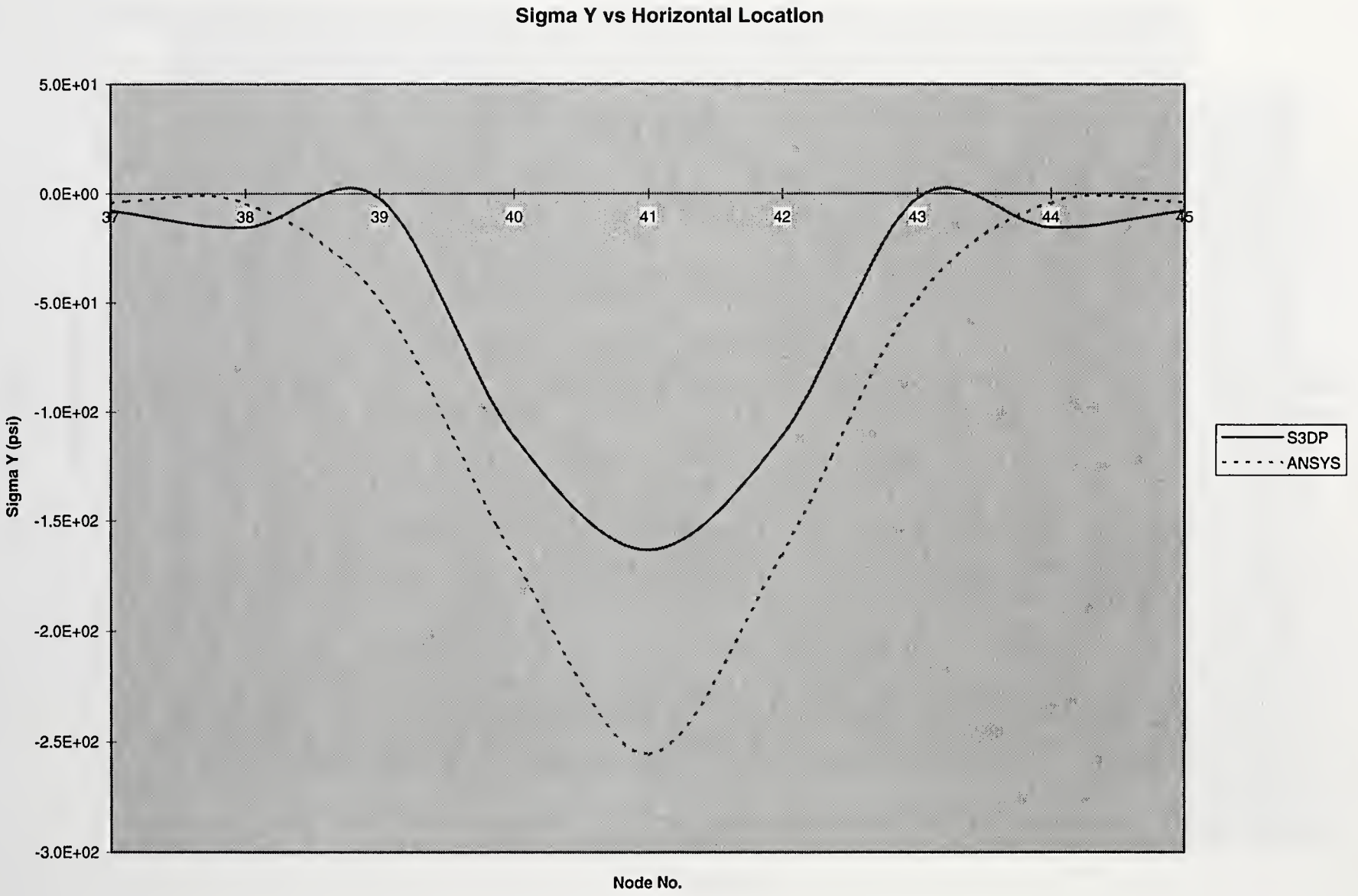


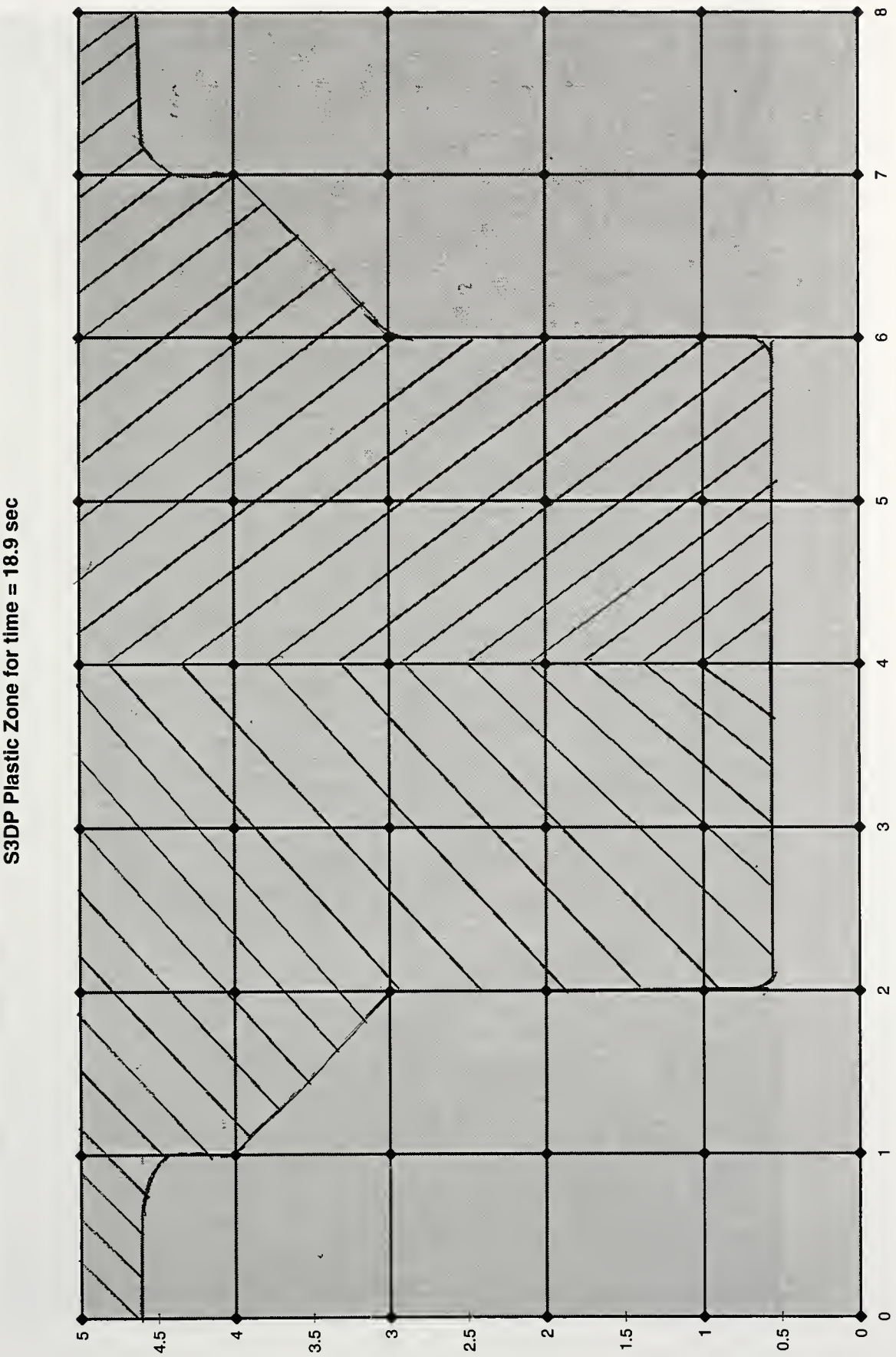
FINITE ELEMENT MESH

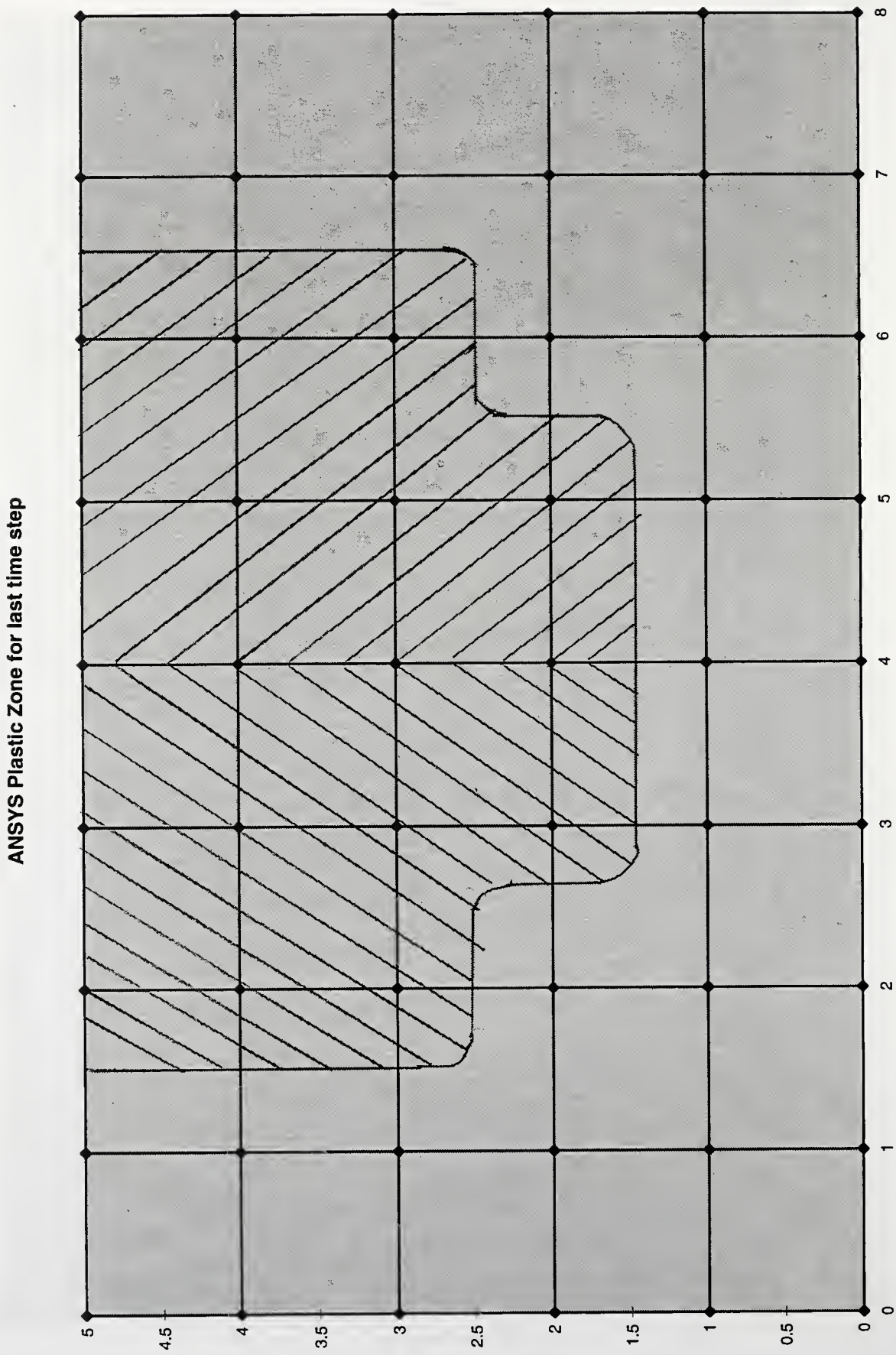
Deflection and stress plots


Settlement at node 50 vs Time
0.00E+00
-5.00E-02
-1.00E-01
-1.50E-01
-2.00E-01
-2.50E-01
-3.00E-01
-3.50E-01
Vertical Settlement (in)
0.00E+00
2.00E+00
4.00E+00
6.00E+00
8.00E+00
1.00E+01
1.20E+01
1.40E+01
1.60E+01
1.80E+01
2.00E+01
Time (sec)


Vertical Settlement of Horizontal Plane
0.0E+00
-5.0E-02
-1.0E-01
-1.5E-01
-2.0E-01
-2.5E-01
Vertical Settlement(in)
37
38
39
40
41
42
43
44
45
Node No.
S3DP
ANSYS


Sigma Y vs Horizontal Location
5.0E+01
0.0E+00
-5.0E+01
-1.0E+02
-1.5E+02
-2.0E+02
-2.5E+02
-3.0E+02
Sigma Y (psi)
37
38
39
40
41
42
43
44
45
Node No.
S3DP
ANSYS


S3DP Plastic Zone for time = 18.9 sec
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
0
1
2
3
4
5
6
7
8


ANSYS Plastic Zone for last time step
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
0
1
2
3
4
5
6
7
8

Input file for Solid3D

```
straight edge boundary w/ ramp load on Drucker-Prager Material
500 108 40 1 27 3 5000000 1.e-4  1.e+4  1.e-10  0.
0 1 0 1
1     0.    0.    1.    1   1   1
2     1.    0.    1.    1   1   1
3     2.    0.    1.    1   1   1
4     3.    0.    1.    1   1   1
5     4.    0.    1.    1   1   1
6     5.    0.    1.    1   1   1
7     6.    0.    1.    1   1   1
8     7.    0.    1.    1   1   1
9     8.    0.    1.    1   1   1
10    0.    1.    1.    1   0   0
11    1.    1.    1.    0   0   0
12    2.    1.    1.    0   0   0
13    3.    1.    1.    0   0   0
14    4.    1.    1.    0   0   0
15    5.    1.    1.    0   0   0
16    6.    1.    1.    0   0   0
17    7.    1.    1.    0   0   0
18    8.    1.    1.    1   0   0
19    0.    2.    1.    1   0   0
20    1.    2.    1.    0   0   0
21    2.    2.    1.    0   0   0
22    3.    2.    1.    0   0   0
23    4.    2.    1.    0   0   0
24    5.    2.    1.    0   0   0
25    6.    2.    1.    0   0   0
26    7.    2.    1.    0   0   0
27    8.    2.    1.    1   0   0
28    0.    3.    1.    1   0   0
29    1.    3.    1.    0   0   0
30    2.    3.    1.    0   0   0
31    3.    3.    1.    0   0   0
32    4.    3.    1.    0   0   0
33    5.    3.    1.    0   0   0
34    6.    3.    1.    0   0   0
35    7.    3.    1.    0   0   0
36    8.    3.    1.    1   0   0
37    0.    4.    1.    1   0   0
38    1.    4.    1.    0   0   0
39    2.    4.    1.    0   0   0
40    3.    4.    1.    0   0   0
41    4.    4.    1.    0   0   0
42    5.    4.    1.    0   0   0
43    6.    4.    1.    0   0   0
44    7.    4.    1.    0   0   0
45    8.    4.    1.    1   0   0
46    0.    5.    1.    1   0   0
47    1.    5.    1.    0   0   0
48    2.    5.    1.    0   0   0
49    3.    5.    1.    0   0   0
50    4.    5.    1.    0   0   0
51    5.    5.    1.    0   0   0
52    6.    5.    1.    0   0   0
53    7.    5.    1.    0   0   0
```

54	8.	5.	1.	1	0	0
55	0.	0.	0.	1	1	1
56	1.	0.	0.	1	1	1
57	2.	0.	0.	1	1	1
58	3.	0.	0.	1	1	1
59	4.	0.	0.	1	1	1
60	5.	0.	0.	1	1	1
61	6.	0.	0.	1	1	1
62	7.	0.	0.	1	1	1
63	8.	0.	0.	1	1	1
64	0.	1.	0.	1	0	0
65	1.	1.	0.	0	0	0
66	2.	1.	0.	0	0	0
67	3.	1.	0.	0	0	0
68	4.	1.	0.	0	0	0
69	5.	1.	0.	0	0	0
70	6.	1.	0.	0	0	0
71	7.	1.	0.	0	0	0
72	8.	1.	0.	1	0	0
73	0.	2.	0.	1	0	0
74	1.	2.	0.	0	0	0
75	2.	2.	0.	0	0	0
76	3.	2.	0.	0	0	0
77	4.	2.	0.	0	0	0
78	5.	2.	0.	0	0	0
79	6.	2.	0.	0	0	0
80	7.	2.	0.	0	0	0
81	8.	2.	0.	1	0	0
82	0.	3.	0.	1	0	0
83	1.	3.	0.	0	0	0
84	2.	3.	0.	0	0	0
85	3.	3.	0.	0	0	0
86	4.	3.	0.	0	0	0
87	5.	3.	0.	0	0	0
88	6.	3.	0.	0	0	0
89	7.	3.	0.	0	0	0
90	8.	3.	0.	1	0	0
91	0.	4.	0.	1	0	0
92	1.	4.	0.	0	0	0
93	2.	4.	0.	0	0	0
94	3.	4.	0.	0	0	0
95	4.	4.	0.	0	0	0
96	5.	4.	0.	0	0	0
97	6.	4.	0.	0	0	0
98	7.	4.	0.	0	0	0
99	8.	4.	0.	1	0	0
100	0.	5.	0.	1	0	0
101	1.	5.	0.	0	0	0
102	2.	5.	0.	0	0	0
103	3.	5.	0.	0	0	0
104	4.	5.	0.	0	0	0
105	5.	5.	0.	0	0	0
106	6.	5.	0.	0	0	0
107	7.	5.	0.	0	0	0
108	8.	5.	0.	1	0	0

1 1 2 11 10 55 56 65 64 1 1 1 1 1

```
2  2  3  12  11  56  57  66  65  1  1  2  1  1
3  3  4  13  12  57  58  67  66  1  1  3  1  1
4  4  5  14  13  58  59  68  67  1  1  4  1  1
5  5  6  15  14  59  60  69  68  1  1  5  1  1
6  6  7  16  15  60  61  70  69  1  1  6  1  1
7  7  8  17  16  61  62  71  70  1  1  7  1  1
8  8  9  18  17  62  63  72  71  1  1  8  1  1
9   10  11  20  19  64  65  74  73  1  2  1  1  1
10  11  12  21  20  65  66  75  74  1  2  2  1  1
11  12  13  22  21  66  67  76  75  1  2  3  1  1
12  13  14  23  22  67  68  77  76  1  2  4  1  1
13  14  15  24  23  68  69  78  77  1  2  5  1  1
14  15  16  25  24  69  70  79  78  1  2  6  1  1
15  16  17  26  25  70  71  80  79  1  2  7  1  1
16  17  18  27  26  71  72  81  80  1  2  8  1  1
17  19  20  29  28  73  74  83  82  1  3  1  1  1
18  20  21  30  29  74  75  84  83  1  3  2  1  1
19  21  22  31  30  75  76  85  84  1  3  3  1  1
20  22  23  32  31  76  77  86  85  1  3  4  1  1
21  23  24  33  32  77  78  87  86  1  3  5  1  1
22  24  25  34  33  78  79  88  87  1  3  6  1  1
23  25  26  35  34  79  80  89  88  1  3  7  1  1
24  26  27  36  35  80  81  90  89  1  3  8  1  1
25  28  29  38  37  82  83  92  91  1  4  1  1  1
26  29  30  39  38  83  84  93  92  1  4  2  1  1
27  30  31  40  39  84  85  94  93  1  4  3  1  1
28  31  32  41  40  85  86  95  94  1  4  4  1  1
29  32  33  42  41  86  87  96  95  1  4  5  1  1
30  33  34  43  42  87  88  97  96  1  4  6  1  1
31  34  35  44  43  88  89  98  97  1  4  7  1  1
32  35  36  45  44  89  90  99  98  1  4  8  1  1
33  37  38  47  46  91  92  101  100  1  5  1  1  1
34  38  39  48  47  92  93  102  101  1  5  2  1  1
35  39  40  49  48  93  94  103  102  1  5  3  1  1
36  40  41  50  49  94  95  104  103  1  5  4  1  1
37  41  42  51  50  95  96  105  104  1  5  5  1  1
38  42  43  52  51  96  97  106  105  1  5  6  1  1
39  43  44  53  52  97  98  107  106  1  5  7  1  1
40  44  45  54  53  98  99  108  107  1  5  8  1  1
1 2 2.53e-2  7000.0  0.30  0.
17.   20.  3   0.   0.
2 6
3
0.                0.0
7.5              -175.0
100.             -175.0
3
0.                0.0
7.5              -87.5
100.             -87.5

50  2 1
104 2 1
49  2 2
103 2 2
51  2 2
```

```
105 2 2

37 3 2
38 3 2
39 3 2
40 3 2
41 3 2
42 3 2
43 3 2
44 3 2
45 3 2

37 3 4
38 3 4
39 3 4
40 3 4
41 3 4
42 3 4
43 3 4
44 3 4
45 3 4

37 0 2
38 0 2
39 0 2
40 0 2
41 0 2
42 0 2
43 0 2
44 0 2
45 0 2
```

Sample output file for Solid3D

card 1 straight edge boundary w/ ramp load on Drucker-Prager Material

---

card 2 parameter card

no of time-steps skipped between outputs = 500
number of nodes = 108
number of elements = 40
number of materials = 1
number of output req = 27
no. of d.o.f/node = 3
no. of time steps = 5000000
time increment = .100E-03
coeff of mass damping = .100E+05
tolerance limit = .100E-09
acceleration of gravity = .00000

card 3 index card

index for accel. = 0
index for force = 1
index for I. C. = 0
index for mesh output(1) or not(0) = 1

card 4 nodal point data

node no.	x-ord	y-ord	z-ord	ifx	ify	ifz
1	.00	.00	1.00	1	1	1
2	1.00	.00	1.00	1	1	1
3	2.00	.00	1.00	1	1	1
4	3.00	.00	1.00	1	1	1
5	4.00	.00	1.00	1	1	1
6	5.00	.00	1.00	1	1	1
7	6.00	.00	1.00	1	1	1
8	7.00	.00	1.00	1	1	1
9	8.00	.00	1.00	1	1	1
10	.00	1.00	1.00	1	0	0
11	1.00	1.00	1.00	0	0	0
12	2.00	1.00	1.00	0	0	0
13	3.00	1.00	1.00	0	0	0
14	4.00	1.00	1.00	0	0	0
15	5.00	1.00	1.00	0	0	0
16	6.00	1.00	1.00	0	0	0
17	7.00	1.00	1.00	0	0	0
18	8.00	1.00	1.00	1	0	0
19	.00	2.00	1.00	1	0	0
20	1.00	2.00	1.00	0	0	0
21	2.00	2.00	1.00	0	0	0
22	3.00	2.00	1.00	0	0	0
23	4.00	2.00	1.00	0	0	0
24	5.00	2.00	1.00	0	0	0
25	6.00	2.00	1.00	0	0	0
26	7.00	2.00	1.00	0	0	0
27	8.00	2.00	1.00	1	0	0
28	.00	3.00	1.00	1	0	0
29	1.00	3.00	1.00	0	0	0
30	2.00	3.00	1.00	0	0	0
31	3.00	3.00	1.00	0	0	0
32	4.00	3.00	1.00	0	0	0
33	5.00	3.00	1.00	0	0	0
34	6.00	3.00	1.00	0	0	0
35	7.00	3.00	1.00	0	0	0
36	8.00	3.00	1.00	1	0	0

37	.00	4.00	1.00	1	0	0
38	1.00	4.00	1.00	0	0	0
39	2.00	4.00	1.00	0	0	0
40	3.00	4.00	1.00	0	0	0
41	4.00	4.00	1.00	0	0	0
42	5.00	4.00	1.00	0	0	0
43	6.00	4.00	1.00	0	0	0
44	7.00	4.00	1.00	0	0	0
45	8.00	4.00	1.00	1	0	0
46	.00	5.00	1.00	1	0	0
47	1.00	5.00	1.00	0	0	0
48	2.00	5.00	1.00	0	0	0
49	3.00	5.00	1.00	0	0	0
50	4.00	5.00	1.00	0	0	0
51	5.00	5.00	1.00	0	0	0
52	6.00	5.00	1.00	0	0	0
53	7.00	5.00	1.00	0	0	0
54	8.00	5.00	1.00	1	0	0
55	.00	.00	.00	1	1	1
56	1.00	.00	.00	1	1	1
57	2.00	.00	.00	1	1	1
58	3.00	.00	.00	1	1	1
59	4.00	.00	.00	1	1	1
60	5.00	.00	.00	1	1	1
61	6.00	.00	.00	1	1	1
62	7.00	.00	.00	1	1	1
63	8.00	.00	.00	1	1	1
64	.00	1.00	.00	1	0	0
65	1.00	1.00	.00	0	0	0
66	2.00	1.00	.00	0	0	0
67	3.00	1.00	.00	0	0	0
68	4.00	1.00	.00	0	0	0
69	5.00	1.00	.00	0	0	0
70	6.00	1.00	.00	0	0	0
71	7.00	1.00	.00	0	0	0
72	8.00	1.00	.00	1	0	0
73	.00	2.00	.00	1	0	0
74	1.00	2.00	.00	0	0	0
75	2.00	2.00	.00	0	0	0
76	3.00	2.00	.00	0	0	0
77	4.00	2.00	.00	0	0	0
78	5.00	2.00	.00	0	0	0
79	6.00	2.00	.00	0	0	0
80	7.00	2.00	.00	0	0	0
81	8.00	2.00	.00	1	0	0
82	.00	3.00	.00	1	0	0
83	1.00	3.00	.00	0	0	0
84	2.00	3.00	.00	0	0	0
85	3.00	3.00	.00	0	0	0
86	4.00	3.00	.00	0	0	0
87	5.00	3.00	.00	0	0	0
88	6.00	3.00	.00	0	0	0
89	7.00	3.00	.00	0	0	0
90	8.00	3.00	.00	1	0	0
91	.00	4.00	.00	1	0	0
92	1.00	4.00	.00	0	0	0
93	2.00	4.00	.00	0	0	0
94	3.00	4.00	.00	0	0	0
95	4.00	4.00	.00	0	0	0
96	5.00	4.00	.00	0	0	0

97	6.00	4.00	.00	0	0	0
98	7.00	4.00	.00	0	0	0
99	8.00	4.00	.00	1	0	0
100	.00	5.00	.00	1	0	0
101	1.00	5.00	.00	0	0	0
102	2.00	5.00	.00	0	0	0
103	3.00	5.00	.00	0	0	0
104	4.00	5.00	.00	0	0	0
105	5.00	5.00	.00	0	0	0
106	6.00	5.00	.00	0	0	0
107	7.00	5.00	.00	0	0	0
108	8.00	5.00	.00	1	0	0

card 5 element data

ele.no.	N1	N2	N3	N4	N5	N6	N7	N8	mat	row	col	E-con.
1	1	2	11	10	55	56	65	64	1	1	1	1
2	2	3	12	11	56	57	66	65	1	1	2	1
3	3	4	13	12	57	58	67	66	1	1	3	1
4	4	5	14	13	58	59	68	67	1	1	4	1
5	5	6	15	14	59	60	69	68	1	1	5	1
6	6	7	16	15	60	61	70	69	1	1	6	1
7	7	8	17	16	61	62	71	70	1	1	7	1
8	8	9	18	17	62	63	72	71	1	1	8	1
9	10	11	20	19	64	65	74	73	1	2	1	1
10	11	12	21	20	65	66	75	74	1	2	2	1
11	12	13	22	21	66	67	76	75	1	2	3	1
12	13	14	23	22	67	68	77	76	1	2	4	1
13	14	15	24	23	68	69	78	77	1	2	5	1
14	15	16	25	24	69	70	79	78	1	2	6	1
15	16	17	26	25	70	71	80	79	1	2	7	1
16	17	18	27	26	71	72	81	80	1	2	8	1
17	19	20	29	28	73	74	83	82	1	3	1	1
18	20	21	30	29	74	75	84	83	1	3	2	1
19	21	22	31	30	75	76	85	84	1	3	3	1
20	22	23	32	31	76	77	86	85	1	3	4	1
21	23	24	33	32	77	78	87	86	1	3	5	1
22	24	25	34	33	78	79	88	87	1	3	6	1
23	25	26	35	34	79	80	89	88	1	3	7	1
24	26	27	36	35	80	81	90	89	1	3	8	1
25	28	29	38	37	82	83	92	91	1	4	1	1
26	29	30	39	38	83	84	93	92	1	4	2	1
27	30	31	40	39	84	85	94	93	1	4	3	1
28	31	32	41	40	85	86	95	94	1	4	4	1
29	32	33	42	41	86	87	96	95	1	4	5	1
30	33	34	43	42	87	88	97	96	1	4	6	1
31	34	35	44	43	88	89	98	97	1	4	7	1
32	35	36	45	44	89	90	99	98	1	4	8	1
33	37	38	47	46	91	92	101	100	1	5	1	1
34	38	39	48	47	92	93	102	101	1	5	2	1
35	39	40	49	48	93	94	103	102	1	5	3	1
36	40	41	50	49	94	95	104	103	1	5	4	1
37	41	42	51	50	95	96	105	104	1	5	5	1
38	42	43	52	51	96	97	106	105	1	5	6	1
39	43	44	53	52	97	98	107	106	1	5	7	1
40	44	45	54	53	98	99	108	107	1	5	8	1

card 6 & 7 material property data

material group no.	material type no.	mass density	Youngs modulus	Poisson ratio	tensile strength
1	2	.2530E-01	.7000E+04	.300	.0000E+00

cohesion	phi angle	yield criteion	tangent modulus	hardening rule
.1700E+02	20.00	3	.0000E+00	.000

card 11 prescribed impact force

total no. of impact force history = 2

total no. of nodes applied by impact force = 6

card 12 & 13 impact force history card

force history no.	pair no.	time	iforce
1	1	.0000E+00	.0000E+00
1	2	.7500E+01	-.1750E+03
1	3	.1000E+03	-.1750E+03

card 12 & 13 impact force history card

force history no.	pair no.	time	iforce
2	1	.0000E+00	.0000E+00
2	2	.7500E+01	-.8750E+02
2	3	.1000E+03	-.8750E+02

card 14 nodal impact force information

node no.	x-(1),y-(2),z-(3)	force history no.
50	2	1
104	2	1
49	2	2
103	2	2
51	2	2
105	2	2

card 21 output information card

seq.	node#	d-(0),v-(1),a-(2), stress-(3)	x(1),y(2),z(3) xy(4),yz(5),xz(6)
1	37	3	2
2	38	3	2
3	39	3	2
4	40	3	2
5	41	3	2
6	42	3	2
7	43	3	2
8	44	3	2
9	45	3	2
10	37	3	4
11	38	3	4
12	39	3	4
13	40	3	4
14	41	3	4
15	42	3	4
16	43	3	4
17	44	3	4
18	45	3	4
19	37	0	2
20	38	0	2
21	39	0	2
22	40	0	2
23	41	0	2
24	42	0	2
25	43	0	2
26	44	0	2
27	45	0	2

nstep= 500

```
 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6500
```

```
 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       7000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       7500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       8000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       8500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       9000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       9500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      10000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      10500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      11000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      11500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      12000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      12500
```

```
 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      13000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      13500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      14000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      14500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      15000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      15500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      16000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      16500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      17000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      17500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      18000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      18500
```

```
 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      19000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      19500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      20000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      20500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      21000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      21500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      22000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=      22500

 Plastic element no [element no.Gauss point no] =
   28.4    28.8    29.3    29.7
nstep=      23000

 Plastic element no [element no.Gauss point no] =
   28.4    28.8    29.3    29.7    35.4    35.8    38.3    38.7
nstep=      23500

 Plastic element no [element no.Gauss point no] =
   28.3    28.4    28.7    28.8    29.3    29.4    29.7    29.8
   35.4    35.8    38.3    38.7
nstep=      24000

 Plastic element no [element no.Gauss point no] =
   28.3    28.4    28.7    28.8    29.3    29.4    29.7    29.8
   35.4    35.8    38.3    38.7
nstep=      24500

 Plastic element no [element no.Gauss point no] =
```

```
   28.3    28.4    28.7    28.8    29.3    29.4    29.7    29.8
   35.4    35.8    38.3    38.7
nstep=      25000

 Plastic element no [element no.Gauss point no] =
   28.3    28.4    28.7    28.8    29.3    29.4    29.7    29.8
   35.4    35.8    38.3    38.7
nstep=      25500

 Plastic element no [element no.Gauss point no] =
   28.3    28.4    28.7    28.8    29.3    29.4    29.7    29.8
   35.4    35.8    38.3    38.7
nstep=      26000

 Plastic element no [element no.Gauss point no] =
   28.3    28.4    28.7    28.8    29.3    29.4    29.7    29.8
   35.4    35.8    38.3    38.7
nstep=      26500

 Plastic element no [element no.Gauss point no] =
   28.3    28.4    28.7    28.8    29.3    29.4    29.7    29.8
   35.4    35.8    38.3    38.7
nstep=      27000

 Plastic element no [element no.Gauss point no] =
   28.3    28.4    28.7    28.8    29.3    29.4    29.7    29.8
   35.4    35.8    38.3    38.7
nstep=      27500

 Plastic element no [element no.Gauss point no] =
   28.3    28.4    28.7    28.8    29.3    29.4    29.7    29.8
   35.3    35.4    35.7    35.8    38.3    38.4    38.7    38.8
nstep=      28000

 Plastic element no [element no.Gauss point no] =
   28.3    28.4    28.7    28.8    29.3    29.4    29.7    29.8
   35.3    35.4    35.7    35.8    38.3    38.4    38.7    38.8
nstep=      28500

 Plastic element no [element no.Gauss point no] =
   28.3    28.4    28.7    28.8    29.3    29.4    29.7    29.8
   35.3    35.4    35.7    35.8    38.3    38.4    38.7    38.8
nstep=      29000

 Plastic element no [element no.Gauss point no] =
   28.3    28.4    28.7    28.8    29.3    29.4    29.7    29.8
   35.3    35.4    35.7    35.8    38.3    38.4    38.7    38.8
nstep=      29500

 Plastic element no [element no.Gauss point no] =
   20.4    20.8    21.3    21.7    28.3    28.4    28.7    28.8
   29.3    29.4    29.7    29.8    35.3    35.4    35.7    35.8
   38.3    38.4    38.7    38.8
nstep=      30000

 Plastic element no [element no.Gauss point no] =
   20.4    20.8    21.3    21.7    27.4    27.8    28.1    28.3
   28.4    28.5    28.7    28.8    29.2    29.3    29.4    29.6
   29.7    29.8    30.3    30.7    35.3    35.4    35.7    35.8
   38.3    38.4    38.7    38.8
```

nstep= 54500

Plastic element no [element no.Gauss point no] =

12.1	12.3	12.4	12.5	12.7	12.8	13.2	13.3
13.4	13.6	13.7	13.8	19.1	19.3	19.4	19.5
19.7	19.8	20.1	20.2	20.3	20.4	20.5	20.6
20.7	20.8	21.1	21.2	21.3	21.4	21.5	21.6
21.7	21.8	22.2	22.3	22.4	22.6	22.7	22.8
27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8
28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8
29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8
30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8
35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8
36.1	36.2	36.5	36.6	37.1	37.2	37.5	37.6
38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8

nstep= 189000

Plastic element no [element no.Gauss point no] =

3.3	3.4	3.7	3.8	4.3	4.4	4.7	4.8
5.3	5.4	5.7	5.8	6.3	6.4	6.7	6.8
11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8
12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8
13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8
14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8
19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8
20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8
21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8
22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8
26.2	26.3	26.4	26.6	26.7	26.8	27.1	27.2
27.3	27.4	27.5	27.6	27.7	27.8	28.1	28.2
28.3	28.4	28.5	28.6	28.7	28.8	29.1	29.2
29.3	29.4	29.5	29.6	29.7	29.8	30.1	30.2
30.3	30.4	30.5	30.6	30.7	30.8	31.1	31.3
31.4	31.5	31.7	31.8	33.3	33.4	33.7	33.8
34.3	34.4	34.7	34.8	35.1	35.2	35.3	35.4
35.5	35.6	35.7	35.8	36.1	36.2	36.3	36.4
36.5	36.6	36.7	36.8	37.1	37.2	37.3	37.4
37.5	37.6	37.7	37.8	38.1	38.2	38.3	38.4
38.5	38.6	38.7	38.8	39.3	39.4	39.7	39.8
40.3	40.4	40.7	40.8				

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 card  21   output information card
             seq.     node#      d-(0),v-(1),a-(2),    x(1),y(2),z(3)
                                      stress-(3)       xy(4),yz(5),xz(6)
                1        37                3                  2
                2        38                3                  2
                3        39                3                  2
                4        40                3                  2
                5        41                3                  2
                6        42                3                  2
                7        43                3                  2
                8        44                3                  2
                9        45                3                  2
               10        37                3                  4
               11        38                3                  4
               12        39                3                  4
               13        40                3                  4
               14        41                3                  4
               15        42                3                  4
               16        43                3                  4
               17        44                3                  4
               18        45                3                  4
               19        37                0                  2
               20        38                0                  2
               21        39                0                  2
               22        40                0                  2
               23        41                0                  2
               24        42                0                  2
               25        43                0                  2
               26        44                0                  2
               27        45                0                  2
time =   .50000E-01 -.283E-02 -.110E-01 -.376E-02 -.430E+00 -.873E+00 -.430E+00
                    -.376E-02 -.110E-01 -.283E-02  .879E-04 -.906E-02 -.457E-01
                    -.636E-01  .347E-17  .636E-01  .457E-01  .906E-02 -.879E-04
                     .137E-07  .464E-07 -.839E-05 -.399E-04 -.629E-04 -.399E-04
                    -.839E-05  .464E-07  .137E-07
time =   .10000E+00 -.115E-01 -.323E-01 -.308E-01 -.114E+01 -.227E+01 -.114E+01
                    -.308E-01 -.323E-01 -.115E-01 -.560E-02 -.361E-01 -.164E+00
                    -.220E+00  .125E-15  .220E+00  .164E+00  .361E-01  .560E-02
                     .521E-06 -.156E-05 -.406E-04 -.166E-03 -.254E-03 -.166E-03
                    -.406E-04 -.156E-05  .521E-06
time =   .15000E+00 -.188E-01 -.548E-01 -.808E-01 -.194E+01 -.382E+01 -.194E+01
                    -.808E-01 -.548E-01 -.188E-01 -.250E-01 -.776E-01 -.320E+00
                    -.418E+00 -.375E-15  .418E+00  .320E+00  .776E-01  .250E-01
                     .122E-05 -.808E-05 -.994E-04 -.357E-03 -.533E-03 -.357E-03
                    -.994E-04 -.808E-05  .122E-05
time =   .20000E+00 -.242E-01 -.799E-01 -.152E+00 -.280E+01 -.544E+01 -.280E+01
                    -.152E+00 -.799E-01 -.242E-01 -.600E-01 -.131E+00 -.500E+00
                    -.639E+00 -.133E-14  .639E+00  .500E+00  .131E+00  .600E-01
                     .201E-06 -.221E-04 -.184E-03 -.598E-03 -.874E-03 -.598E-03
                    -.184E-03 -.221E-04  .201E-06
time =   .25000E+00 -.298E-01 -.110E+00 -.241E+00 -.370E+01 -.711E+01 -.370E+01
                    -.241E+00 -.110E+00 -.298E-01 -.109E+00 -.195E+00 -.698E+00
                    -.874E+00 -.200E-14  .874E+00  .698E+00  .195E+00  .109E+00
                    -.466E-05 -.451E-04 -.291E-03 -.879E-03 -.126E-02 -.879E-03
                    -.291E-03 -.451E-04 -.466E-05
time =   .30000E+00 -.381E-01 -.146E+00 -.347E+00 -.463E+01 -.882E+01 -.463E+01
```

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                -.347E+00 -.146E+00 -.381E-01 -.169E+00 -.267E+00 -.907E+00
                -.112E+01 -.411E-14  .112E+01  .907E+00  .267E+00  .169E+00
                -.150E-04 -.777E-04 -.418E-03 -.119E-02 -.169E-02 -.119E-02
                -.418E-03 -.777E-04 -.150E-04
time =  .35000E+00 -.504E-01 -.189E+00 -.467E+00 -.558E+01 -.105E+02 -.558E+01
                -.467E+00 -.189E+00 -.504E-01 -.237E+00 -.345E+00 -.113E+01
                -.137E+01 -.472E-14  .137E+01  .113E+01  .345E+00  .237E+00
                -.318E-04 -.120E-03 -.564E-03 -.153E-02 -.214E-02 -.153E-02
                -.564E-03 -.120E-03 -.318E-04
time =  .40000E+00 -.676E-01 -.239E+00 -.599E+00 -.654E+01 -.123E+02 -.654E+01
                -.599E+00 -.239E+00 -.676E-01 -.312E+00 -.427E+00 -.135E+01
                -.163E+01 -.666E-14  .163E+01  .135E+01  .427E+00  .312E+00
                -.555E-04 -.172E-03 -.724E-03 -.189E-02 -.262E-02 -.189E-02
                -.724E-03 -.172E-03 -.555E-04
time =  .45000E+00 -.899E-01 -.296E+00 -.742E+00 -.752E+01 -.141E+02 -.752E+01
                -.742E+00 -.296E+00 -.899E-01 -.392E+00 -.513E+00 -.158E+01
                -.189E+01 -.699E-14  .189E+01  .158E+01  .513E+00  .392E+00
                -.861E-04 -.232E-03 -.897E-03 -.227E-02 -.312E-02 -.227E-02
                -.897E-03 -.232E-03 -.861E-04
time =  .50000E+00 -.117E+00 -.359E+00 -.894E+00 -.851E+01 -.159E+02 -.851E+01
                -.894E+00 -.359E+00 -.117E+00 -.476E+00 -.602E+00 -.182E+01
                -.215E+01 -.855E-14  .215E+01  .182E+01  .602E+00  .476E+00
                -.123E-03 -.300E-03 -.108E-02 -.266E-02 -.363E-02 -.266E-02
                -.108E-02 -.300E-03 -.123E-03
time =  .55000E+00 -.150E+00 -.427E+00 -.105E+01 -.952E+01 -.176E+02 -.952E+01
                -.105E+01 -.427E+00 -.150E+00 -.562E+00 -.692E+00 -.205E+01
                -.241E+01 -.711E-14  .241E+01  .205E+01  .692E+00  .562E+00
                -.167E-03 -.376E-03 -.128E-02 -.306E-02 -.416E-02 -.306E-02
                -.128E-02 -.376E-03 -.167E-03
time =  .60000E+00 -.186E+00 -.501E+00 -.122E+01 -.105E+02 -.194E+02 -.105E+02
                -.122E+01 -.501E+00 -.186E+00 -.650E+00 -.783E+00 -.229E+01
                -.268E+01 -.114E-13  .268E+01  .229E+01  .783E+00  .650E+00
                -.216E-03 -.458E-03 -.148E-02 -.348E-02 -.470E-02 -.348E-02
                -.148E-02 -.458E-03 -.216E-03
time =  .65000E+00 -.227E+00 -.579E+00 -.139E+01 -.115E+02 -.213E+02 -.115E+02
                -.139E+01 -.579E+00 -.227E+00 -.739E+00 -.875E+00 -.253E+01
                -.295E+01 -.899E-14  .295E+01  .253E+01  .875E+00  .739E+00
                -.271E-03 -.545E-03 -.169E-02 -.390E-02 -.524E-02 -.390E-02
                -.169E-02 -.545E-03 -.271E-03
time =  .70000E+00 -.272E+00 -.662E+00 -.157E+01 -.126E+02 -.231E+02 -.126E+02
                -.157E+01 -.662E+00 -.272E+00 -.830E+00 -.968E+00 -.277E+01
                -.321E+01 -.888E-14  .321E+01  .277E+01  .968E+00  .830E+00
                -.330E-03 -.638E-03 -.190E-02 -.433E-02 -.580E-02 -.433E-02
                -.190E-02 -.638E-03 -.330E-03
time =  .75000E+00 -.320E+00 -.748E+00 -.175E+01 -.136E+02 -.249E+02 -.136E+02
                -.175E+01 -.748E+00 -.320E+00 -.921E+00 -.106E+01 -.301E+01
                -.348E+01 -.600E-14  .348E+01  .301E+01  .106E+01  .921E+00
                -.394E-03 -.736E-03 -.212E-02 -.476E-02 -.636E-02 -.476E-02
                -.212E-02 -.736E-03 -.394E-03
time =  .80000E+00 -.371E+00 -.837E+00 -.193E+01 -.146E+02 -.267E+02 -.146E+02
                -.193E+01 -.837E+00 -.371E+00 -.101E+01 -.116E+01 -.325E+01
                -.375E+01 -.138E-13  .375E+01  .325E+01  .116E+01  .101E+01
                -.461E-03 -.837E-03 -.235E-02 -.520E-02 -.693E-02 -.520E-02
                -.235E-02 -.837E-03 -.461E-03
time =  .85000E+00 -.425E+00 -.929E+00 -.212E+01 -.157E+02 -.285E+02 -.157E+02
                -.212E+01 -.929E+00 -.425E+00 -.111E+01 -.125E+01 -.349E+01
                -.402E+01 -.178E-14  .402E+01  .349E+01  .125E+01  .111E+01
```

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                    -.532E-03 -.942E-03 -.258E-02 -.565E-02 -.750E-02 -.565E-02
                    -.258E-02 -.942E-03 -.532E-03
time =  .90000E+00 -.481E+00 -.102E+01 -.231E+01 -.167E+02 -.304E+02 -.167E+02
                    -.231E+01 -.102E+01 -.481E+00 -.120E+01 -.134E+01 -.374E+01
                    -.430E+01  .102E-13  .430E+01  .374E+01  .134E+01  .120E+01
                    -.605E-03 -.105E-02 -.281E-02 -.610E-02 -.807E-02 -.610E-02
                    -.281E-02 -.105E-02 -.605E-03
time =  .95000E+00 -.539E+00 -.112E+01 -.250E+01 -.177E+02 -.322E+02 -.177E+02
                    -.250E+01 -.112E+01 -.539E+00 -.129E+01 -.144E+01 -.398E+01
                    -.457E+01  .167E-13  .457E+01  .398E+01  .144E+01  .129E+01
                    -.681E-03 -.116E-02 -.305E-02 -.655E-02 -.865E-02 -.655E-02
                    -.305E-02 -.116E-02 -.681E-03
time =  .10000E+01 -.599E+00 -.122E+01 -.270E+01 -.188E+02 -.341E+02 -.188E+02
                    -.270E+01 -.122E+01 -.599E+00 -.138E+01 -.153E+01 -.422E+01
                    -.484E+01  .688E-14  .484E+01  .422E+01  .153E+01  .138E+01
                    -.759E-03 -.127E-02 -.328E-02 -.700E-02 -.923E-02 -.700E-02
                    -.328E-02 -.127E-02 -.759E-03
time =  .10500E+01 -.661E+00 -.132E+01 -.289E+01 -.198E+02 -.359E+02 -.198E+02
                    -.289E+01 -.132E+01 -.661E+00 -.148E+01 -.163E+01 -.446E+01
                    -.511E+01  .755E-14  .511E+01  .446E+01  .163E+01  .148E+01
                    -.839E-03 -.139E-02 -.352E-02 -.746E-02 -.981E-02 -.746E-02
                    -.352E-02 -.139E-02 -.839E-03
time =  .11000E+01 -.723E+00 -.142E+01 -.309E+01 -.209E+02 -.377E+02 -.209E+02
                    -.309E+01 -.142E+01 -.723E+00 -.157E+01 -.172E+01 -.471E+01
                    -.538E+01  .822E-14  .538E+01  .471E+01  .172E+01  .157E+01
                    -.921E-03 -.150E-02 -.377E-02 -.792E-02 -.104E-01 -.792E-02
                    -.377E-02 -.150E-02 -.921E-03
time =  .11500E+01 -.787E+00 -.152E+01 -.329E+01 -.219E+02 -.396E+02 -.219E+02
                    -.329E+01 -.152E+01 -.787E+00 -.166E+01 -.182E+01 -.495E+01
                    -.565E+01  .180E-13  .565E+01  .495E+01  .182E+01  .166E+01
                    -.100E-02 -.162E-02 -.401E-02 -.838E-02 -.110E-01 -.838E-02
                    -.401E-02 -.162E-02 -.100E-02
time =  .12000E+01 -.852E+00 -.162E+01 -.349E+01 -.230E+02 -.414E+02 -.230E+02
                    -.349E+01 -.162E+01 -.852E+00 -.176E+01 -.191E+01 -.519E+01
                    -.593E+01  .318E-13  .593E+01  .519E+01  .191E+01  .176E+01
                    -.109E-02 -.174E-02 -.425E-02 -.884E-02 -.116E-01 -.884E-02
                    -.425E-02 -.174E-02 -.109E-02
time =  .12500E+01 -.918E+00 -.173E+01 -.369E+01 -.240E+02 -.433E+02 -.240E+02
                    -.369E+01 -.173E+01 -.918E+00 -.185E+01 -.201E+01 -.543E+01
                    -.620E+01  .502E-13  .620E+01  .543E+01  .201E+01  .185E+01
                    -.117E-02 -.186E-02 -.450E-02 -.930E-02 -.122E-01 -.930E-02
                    -.450E-02 -.186E-02 -.117E-02
time =  .13000E+01 -.984E+00 -.183E+01 -.389E+01 -.251E+02 -.451E+02 -.251E+02
                    -.389E+01 -.183E+01 -.984E+00 -.194E+01 -.210E+01 -.568E+01
                    -.647E+01  .568E-13  .647E+01  .568E+01  .210E+01  .194E+01
                    -.126E-02 -.198E-02 -.475E-02 -.977E-02 -.128E-01 -.977E-02
                    -.475E-02 -.198E-02 -.126E-02
time =  .13500E+01 -.105E+01 -.194E+01 -.409E+01 -.261E+02 -.470E+02 -.261E+02
                    -.409E+01 -.194E+01 -.105E+01 -.204E+01 -.219E+01 -.592E+01
                    -.674E+01  .719E-13  .674E+01  .592E+01  .219E+01  .204E+01
                    -.135E-02 -.210E-02 -.499E-02 -.102E-01 -.133E-01 -.102E-01
                    -.499E-02 -.210E-02 -.135E-02
time =  .14000E+01 -.112E+01 -.204E+01 -.429E+01 -.272E+02 -.488E+02 -.272E+02
                    -.429E+01 -.204E+01 -.112E+01 -.213E+01 -.229E+01 -.616E+01
                    -.702E+01  .511E-13  .702E+01  .616E+01  .229E+01  .213E+01
                    -.144E-02 -.223E-02 -.524E-02 -.107E-01 -.139E-01 -.107E-01
                    -.524E-02 -.223E-02 -.144E-02
```

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time =  .14500E+01 -.119E+01 -.215E+01 -.449E+01 -.282E+02 -.507E+02 -.282E+02
                   -.449E+01 -.215E+01 -.119E+01 -.222E+01 -.238E+01 -.640E+01
                   -.729E+01  .679E-13  .729E+01  .640E+01  .238E+01  .222E+01
                   -.152E-02 -.235E-02 -.549E-02 -.112E-01 -.145E-01 -.112E-01
                   -.549E-02 -.235E-02 -.152E-02
time =  .15000E+01 -.126E+01 -.226E+01 -.469E+01 -.293E+02 -.525E+02 -.293E+02
                   -.469E+01 -.226E+01 -.126E+01 -.232E+01 -.248E+01 -.665E+01
                   -.757E+01  .862E-13  .757E+01  .665E+01  .248E+01  .232E+01
                   -.161E-02 -.247E-02 -.574E-02 -.116E-01 -.151E-01 -.116E-01
                   -.574E-02 -.247E-02 -.161E-02
time =  .15500E+01 -.132E+01 -.236E+01 -.490E+01 -.303E+02 -.544E+02 -.303E+02
                   -.490E+01 -.236E+01 -.132E+01 -.241E+01 -.257E+01 -.689E+01
                   -.784E+01  .937E-13  .784E+01  .689E+01  .257E+01  .241E+01
                   -.170E-02 -.260E-02 -.599E-02 -.121E-01 -.157E-01 -.121E-01
                   -.599E-02 -.260E-02 -.170E-02
time =  .16000E+01 -.139E+01 -.247E+01 -.510E+01 -.314E+02 -.562E+02 -.314E+02
                   -.510E+01 -.247E+01 -.139E+01 -.251E+01 -.266E+01 -.713E+01
                   -.811E+01  .808E-13  .811E+01  .713E+01  .266E+01  .251E+01
                   -.179E-02 -.272E-02 -.624E-02 -.126E-01 -.163E-01 -.126E-01
                   -.624E-02 -.272E-02 -.179E-02
time =  .16500E+01 -.146E+01 -.258E+01 -.530E+01 -.324E+02 -.581E+02 -.324E+02
                   -.530E+01 -.258E+01 -.146E+01 -.260E+01 -.276E+01 -.737E+01
                   -.839E+01  .799E-13  .839E+01  .737E+01  .276E+01  .260E+01
                   -.188E-02 -.285E-02 -.649E-02 -.130E-01 -.169E-01 -.130E-01
                   -.649E-02 -.285E-02 -.188E-02
time =  .17000E+01 -.153E+01 -.269E+01 -.551E+01 -.335E+02 -.599E+02 -.335E+02
                   -.551E+01 -.269E+01 -.153E+01 -.269E+01 -.285E+01 -.761E+01
                   -.866E+01  .475E-13  .866E+01  .761E+01  .285E+01  .269E+01
                   -.197E-02 -.297E-02 -.674E-02 -.135E-01 -.175E-01 -.135E-01
                   -.674E-02 -.297E-02 -.197E-02
time =  .17500E+01 -.160E+01 -.279E+01 -.571E+01 -.345E+02 -.618E+02 -.345E+02
                   -.571E+01 -.279E+01 -.160E+01 -.279E+01 -.295E+01 -.786E+01
                   -.894E+01  .338E-13  .894E+01  .786E+01  .295E+01  .279E+01
                   -.206E-02 -.310E-02 -.699E-02 -.140E-01 -.181E-01 -.140E-01
                   -.699E-02 -.310E-02 -.206E-02
time =  .18000E+01 -.167E+01 -.290E+01 -.591E+01 -.356E+02 -.636E+02 -.356E+02
                   -.591E+01 -.290E+01 -.167E+01 -.288E+01 -.304E+01 -.810E+01
                   -.921E+01  .000E+00  .921E+01  .810E+01  .304E+01  .288E+01
                   -.215E-02 -.322E-02 -.724E-02 -.144E-01 -.187E-01 -.144E-01
                   -.724E-02 -.322E-02 -.215E-02
time =  .18500E+01 -.174E+01 -.301E+01 -.612E+01 -.367E+02 -.655E+02 -.367E+02
                   -.612E+01 -.301E+01 -.174E+01 -.297E+01 -.313E+01 -.834E+01
                   -.949E+01  .351E-13  .949E+01  .834E+01  .313E+01  .297E+01
                   -.224E-02 -.335E-02 -.749E-02 -.149E-01 -.193E-01 -.149E-01
                   -.749E-02 -.335E-02 -.224E-02
time =  .19000E+01 -.181E+01 -.312E+01 -.632E+01 -.377E+02 -.674E+02 -.377E+02
                   -.632E+01 -.312E+01 -.181E+01 -.307E+01 -.323E+01 -.858E+01
                   -.976E+01  .395E-13  .976E+01  .858E+01  .323E+01  .307E+01
                   -.233E-02 -.347E-02 -.774E-02 -.154E-01 -.199E-01 -.154E-01
                   -.774E-02 -.347E-02 -.233E-02
time =  .19500E+01 -.188E+01 -.323E+01 -.652E+01 -.388E+02 -.692E+02 -.388E+02
                   -.652E+01 -.323E+01 -.188E+01 -.316E+01 -.332E+01 -.882E+01
                   -.100E+02  .449E-13  .100E+02  .882E+01  .332E+01  .316E+01
                   -.243E-02 -.360E-02 -.799E-02 -.158E-01 -.205E-01 -.158E-01
                   -.799E-02 -.360E-02 -.243E-02
time =  .20000E+01 -.195E+01 -.333E+01 -.673E+01 -.398E+02 -.711E+02 -.398E+02
                   -.673E+01 -.333E+01 -.195E+01 -.326E+01 -.341E+01 -.907E+01
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                    -.103E+02  .422E-13  .103E+02  .907E+01  .341E+01  .326E+01
                    -.252E-02 -.373E-02 -.825E-02 -.163E-01 -.211E-01 -.163E-01
                    -.825E-02 -.373E-02 -.252E-02
time =  .20500E+01 -.202E+01 -.344E+01 -.693E+01 -.409E+02 -.729E+02 -.409E+02
                    -.693E+01 -.344E+01 -.202E+01 -.335E+01 -.351E+01 -.931E+01
                    -.106E+02  .102E-13  .106E+02  .931E+01  .351E+01  .335E+01
                    -.261E-02 -.385E-02 -.850E-02 -.168E-01 -.217E-01 -.168E-01
                    -.850E-02 -.385E-02 -.261E-02
time =  .21000E+01 -.209E+01 -.355E+01 -.713E+01 -.419E+02 -.748E+02 -.419E+02
                    -.713E+01 -.355E+01 -.209E+01 -.344E+01 -.360E+01 -.955E+01
                    -.109E+02 -.844E-14  .109E+02  .955E+01  .360E+01  .344E+01
                    -.270E-02 -.398E-02 -.875E-02 -.173E-01 -.223E-01 -.173E-01
                    -.875E-02 -.398E-02 -.270E-02
time =  .21500E+01 -.216E+01 -.366E+01 -.734E+01 -.430E+02 -.766E+02 -.430E+02
                    -.734E+01 -.366E+01 -.216E+01 -.354E+01 -.369E+01 -.979E+01
                    -.111E+02 -.235E-13  .111E+02  .979E+01  .369E+01  .354E+01
                    -.279E-02 -.410E-02 -.900E-02 -.177E-01 -.229E-01 -.177E-01
                    -.900E-02 -.410E-02 -.279E-02
time =  .22000E+01 -.223E+01 -.377E+01 -.754E+01 -.440E+02 -.785E+02 -.440E+02
                    -.754E+01 -.377E+01 -.223E+01 -.363E+01 -.379E+01 -.100E+02
                    -.114E+02 -.311E-14  .114E+02  .100E+02  .379E+01  .363E+01
                    -.288E-02 -.423E-02 -.925E-02 -.182E-01 -.235E-01 -.182E-01
                    -.925E-02 -.423E-02 -.288E-02
time =  .22500E+01 -.230E+01 -.388E+01 -.775E+01 -.449E+02 -.805E+02 -.449E+02
                    -.775E+01 -.388E+01 -.230E+01 -.373E+01 -.388E+01 -.103E+02
                    -.116E+02  .444E-14  .116E+02  .103E+02  .388E+01  .373E+01
                    -.297E-02 -.436E-02 -.950E-02 -.187E-01 -.241E-01 -.187E-01
                    -.950E-02 -.436E-02 -.297E-02
time =  .23000E+01 -.237E+01 -.398E+01 -.796E+01 -.457E+02 -.825E+02 -.457E+02
                    -.796E+01 -.398E+01 -.237E+01 -.382E+01 -.397E+01 -.105E+02
                    -.118E+02  .164E-13  .118E+02  .105E+02  .397E+01  .382E+01
                    -.306E-02 -.448E-02 -.975E-02 -.191E-01 -.247E-01 -.191E-01
                    -.975E-02 -.448E-02 -.306E-02
time =  .23500E+01 -.244E+01 -.409E+01 -.815E+01 -.466E+02 -.843E+02 -.466E+02
                    -.815E+01 -.409E+01 -.244E+01 -.391E+01 -.406E+01 -.109E+02
                    -.120E+02 -.453E-13  .120E+02  .109E+02  .406E+01  .391E+01
                    -.315E-02 -.461E-02 -.100E-01 -.196E-01 -.253E-01 -.196E-01
                    -.100E-01 -.461E-02 -.315E-02
time =  .24000E+01 -.251E+01 -.420E+01 -.832E+01 -.475E+02 -.857E+02 -.475E+02
                    -.832E+01 -.420E+01 -.251E+01 -.400E+01 -.415E+01 -.112E+02
                    -.122E+02 -.435E-13  .122E+02  .112E+02  .415E+01  .400E+01
                    -.325E-02 -.473E-02 -.102E-01 -.201E-01 -.260E-01 -.201E-01
                    -.102E-01 -.473E-02 -.325E-02
time =  .24500E+01 -.258E+01 -.431E+01 -.850E+01 -.484E+02 -.872E+02 -.484E+02
                    -.850E+01 -.431E+01 -.258E+01 -.409E+01 -.424E+01 -.116E+02
                    -.124E+02 -.524E-13  .124E+02  .116E+02  .424E+01  .409E+01
                    -.334E-02 -.486E-02 -.105E-01 -.206E-01 -.266E-01 -.206E-01
                    -.105E-01 -.486E-02 -.334E-02
time =  .25000E+01 -.265E+01 -.442E+01 -.867E+01 -.494E+02 -.887E+02 -.494E+02
                    -.867E+01 -.442E+01 -.265E+01 -.418E+01 -.433E+01 -.120E+02
                    -.127E+02 -.746E-13  .127E+02  .120E+02  .433E+01  .418E+01
                    -.343E-02 -.498E-02 -.107E-01 -.211E-01 -.273E-01 -.211E-01
                    -.107E-01 -.498E-02 -.343E-02
time =  .25500E+01 -.272E+01 -.453E+01 -.883E+01 -.503E+02 -.901E+02 -.503E+02
                    -.883E+01 -.453E+01 -.272E+01 -.427E+01 -.442E+01 -.123E+02
                    -.129E+02 -.862E-13  .129E+02  .123E+02  .442E+01  .427E+01
                    -.352E-02 -.511E-02 -.110E-01 -.216E-01 -.279E-01 -.216E-01
```

```
                    -.110E-01 -.511E-02 -.352E-02
 time =  .26000E+01 -.278E+01 -.464E+01 -.900E+01 -.513E+02 -.916E+02 -.513E+02
                    -.900E+01 -.464E+01 -.278E+01 -.435E+01 -.451E+01 -.127E+02
                    -.131E+02 -.755E-13  .131E+02  .127E+02  .451E+01  .435E+01
                    -.361E-02 -.523E-02 -.112E-01 -.220E-01 -.286E-01 -.220E-01
                    -.112E-01 -.523E-02 -.361E-02
 time =  .26500E+01 -.285E+01 -.474E+01 -.917E+01 -.522E+02 -.930E+02 -.522E+02
                    -.917E+01 -.474E+01 -.285E+01 -.444E+01 -.460E+01 -.131E+02
                    -.134E+02 -.338E-13  .134E+02  .131E+02  .460E+01  .444E+01
                    -.370E-02 -.535E-02 -.115E-01 -.225E-01 -.293E-01 -.225E-01
                    -.115E-01 -.535E-02 -.370E-02
 time =  .27000E+01 -.292E+01 -.485E+01 -.934E+01 -.532E+02 -.945E+02 -.532E+02
                    -.934E+01 -.485E+01 -.292E+01 -.453E+01 -.469E+01 -.134E+02
                    -.136E+02 -.524E-13  .136E+02  .134E+02  .469E+01  .453E+01
                    -.379E-02 -.548E-02 -.117E-01 -.230E-01 -.299E-01 -.230E-01
                    -.117E-01 -.548E-02 -.379E-02
 time =  .27500E+01 -.299E+01 -.496E+01 -.950E+01 -.542E+02 -.959E+02 -.542E+02
                    -.950E+01 -.496E+01 -.299E+01 -.462E+01 -.478E+01 -.138E+02
                    -.139E+02 -.293E-13  .139E+02  .138E+02  .478E+01  .462E+01
                    -.388E-02 -.560E-02 -.119E-01 -.235E-01 -.306E-01 -.235E-01
                    -.119E-01 -.560E-02 -.388E-02
 time =  .28000E+01 -.305E+01 -.507E+01 -.961E+01 -.553E+02 -.974E+02 -.553E+02
                    -.961E+01 -.507E+01 -.305E+01 -.471E+01 -.486E+01 -.142E+02
                    -.142E+02 -.107E-13  .142E+02  .142E+02  .486E+01  .471E+01
                    -.398E-02 -.572E-02 -.122E-01 -.240E-01 -.312E-01 -.240E-01
                    -.122E-01 -.572E-02 -.398E-02
 time =  .28500E+01 -.312E+01 -.517E+01 -.970E+01 -.565E+02 -.989E+02 -.565E+02
                    -.970E+01 -.517E+01 -.312E+01 -.479E+01 -.495E+01 -.146E+02
                    -.145E+02 -.533E-14  .145E+02  .146E+02  .495E+01  .479E+01
                    -.407E-02 -.585E-02 -.124E-01 -.245E-01 -.319E-01 -.245E-01
                    -.124E-01 -.585E-02 -.407E-02
 time =  .29000E+01 -.319E+01 -.528E+01 -.978E+01 -.577E+02 -.100E+03 -.577E+02
                    -.978E+01 -.528E+01 -.319E+01 -.487E+01 -.504E+01 -.150E+02
                    -.148E+02  .258E-13  .148E+02  .150E+02  .504E+01  .487E+01
                    -.416E-02 -.597E-02 -.127E-01 -.250E-01 -.326E-01 -.250E-01
                    -.127E-01 -.597E-02 -.416E-02
 time =  .29500E+01 -.325E+01 -.539E+01 -.986E+01 -.589E+02 -.102E+03 -.589E+02
                    -.986E+01 -.539E+01 -.325E+01 -.496E+01 -.513E+01 -.154E+02
                    -.152E+02  .506E-13  .152E+02  .154E+02  .513E+01  .496E+01
                    -.425E-02 -.609E-02 -.129E-01 -.255E-01 -.333E-01 -.255E-01
                    -.129E-01 -.609E-02 -.425E-02
 time =  .30000E+01 -.332E+01 -.550E+01 -.986E+01 -.602E+02 -.103E+03 -.602E+02
                    -.986E+01 -.550E+01 -.332E+01 -.504E+01 -.521E+01 -.156E+02
                    -.156E+02  .790E-13  .156E+02  .156E+02  .521E+01  .504E+01
                    -.434E-02 -.621E-02 -.131E-01 -.260E-01 -.339E-01 -.260E-01
                    -.131E-01 -.621E-02 -.434E-02
time =  .54500E+01  -.589E+01 -.110E+02 -.450E+01 -.108E+03 -.121E+03 -.108E+03
                    -.450E+01 -.110E+02 -.589E+01 -.894E+01 -.881E+01 -.173E+02
                    -.399E+02  .311E-13  .399E+02  .173E+02  .881E+01  .894E+01
                    -.809E-02 -.114E-01 -.235E-01 -.625E-01 -.876E-01 -.625E-01
                    -.235E-01 -.114E-01 -.809E-02
 time =  .18850E+02 -.783E+01 -.156E+02 -.234E+01 -.111E+03 -.163E+03 -.111E+03
                    -.234E+01 -.156E+02 -.783E+01 -.147E+02 -.144E+02 -.113E+02
                    -.598E+02 -.533E-12  .598E+02  .113E+02  .144E+02  .147E+02
                    -.108E-01 -.160E-01 -.356E-01 -.153E+00 -.222E+00 -.153E+00
                    -.356E-01 -.160E-01 -.108E-01
```

***** INDEX OF DATA SETS ON RESULTS FILE *****

SET	TIME/FREQ	LOAD STEP	SUBSTEP	CUMULATIVE
1	0.75000	1	1	1
2	1.5000	1	2	2
3	3.0000	1	3	3
4	4.8391	1	4	13
5	6.6783	1	5	17
6	7.5000	1	6	20

Input and output of ANSYS

LIST NODAL FORCES FOR SELECTED NODES 1 TO 108 BY 1
CURRENTLY SELECTED NODAL LOAD SET= FX FY FZ

NODE	LABEL	REAL	IMAG
10	FY	-87.5000000	0.
11	FY	-175.000000	0.
12	FY	-87.5000000	0.
72	FY	-87.5000000	0.
73	FY	-175.000000	0.
74	FY	-87.5000000	0.

LIST ALL SELECTED ELEMENTS. (LIST NODES)

ELEM	MAT	TYP	REL	ESY	NODES							
1	1	1	1	0	2	20	27	6	55	57	81	80
2	1	1	1	0	20	21	28	27	57	58	85	81
3	1	1	1	0	21	22	29	28	58	59	89	85
4	1	1	1	0	22	23	30	29	59	60	93	89
5	1	1	1	0	23	24	31	30	60	61	97	93
6	1	1	1	0	24	25	32	31	61	62	101	97
7	1	1	1	0	25	26	33	32	62	63	105	101
8	1	1	1	0	26	15	16	33	63	56	65	105
9	1	1	1	0	6	27	34	5	80	81	82	79
10	1	1	1	0	27	28	35	34	81	85	86	82
11	1	1	1	0	28	29	36	35	85	89	90	86
12	1	1	1	0	29	30	37	36	89	93	94	90
13	1	1	1	0	30	31	38	37	93	97	98	94
14	1	1	1	0	31	32	39	38	97	101	102	98
15	1	1	1	0	32	33	40	39	101	105	106	102
16	1	1	1	0	33	16	17	40	105	65	66	106
17	1	1	1	0	5	34	41	4	79	82	83	78
18	1	1	1	0	34	35	42	41	82	86	87	83
19	1	1	1	0	35	36	43	42	86	90	91	87
20	1	1	1	0	36	37	44	43	90	94	95	91

ELEM	MAT	TYP	REL	ESY	NODES							
21	1	1	1	0	37	38	45	44	94	98	99	95
22	1	1	1	0	38	39	46	45	98	102	103	99
23	1	1	1	0	39	40	47	46	102	106	107	103
24	1	1	1	0	40	17	18	47	106	66	67	107
25	1	1	1	0	4	41	48	3	78	83	84	77
26	1	1	1	0	41	42	49	48	83	87	88	84
27	1	1	1	0	42	43	50	49	87	91	92	88
28	1	1	1	0	43	44	51	50	91	95	96	92
29	1	1	1	0	44	45	52	51	95	99	100	96
30	1	1	1	0	45	46	53	52	99	103	104	100
31	1	1	1	0	46	47	54	53	103	107	108	104
32	1	1	1	0	47	18	19	54	107	67	68	108
33	1	1	1	0	3	48	14	1	77	84	76	69
34	1	1	1	0	48	49	13	14	84	88	75	76
35	1	1	1	0	49	50	12	13	88	92	74	75
36	1	1	1	0	50	51	11	12	92	96	73	74
37	1	1	1	0	51	52	10	11	96	100	72	73
38	1	1	1	0	52	53	9	10	100	104	71	72
39	1	1	1	0	53	54	8	9	104	108	70	71
40	1	1	1	0	54	19	7	8	108	68	64	70

PRINT DOF NODAL SOLUTION PER NODE

***** POST1 NODAL DEGREE OF FREEDOM LISTING *****

LOAD STEP= 1 SUBSTEP= 6
TIME= 7.5000 LOAD CASE= 0

THE FOLLOWING DEGREE OF FREEDOM RESULTS ARE IN GLOBAL COORDINATES

NODE	UX	UY	UZ
1	0.	-0.12616E-01	0.11985E-02
2	0.	0.	0.
3	0.	-0.12421E-01	-0.33285E-03
4	0.	-0.13203E-01	-0.16669E-02
5	0.	-0.12589E-01	-0.18697E-02
6	0.	-0.74743E-02	-0.26677E-02
7	0.	-0.12616E-01	0.11985E-02
8	-0.72851E-02	-0.17817E-01	0.11729E-02
9	-0.19750E-01	-0.37498E-01	0.44640E-02
10	-0.27037E-01	-0.14826	-0.21817E-01
11	-0.43898E-16	-0.32952	-0.81479E-01
12	0.27037E-01	-0.14826	-0.21817E-01
13	0.19750E-01	-0.37498E-01	0.44640E-02
14	0.72851E-02	-0.17817E-01	0.11729E-02
15	0.	0.	0.
16	0.	-0.74743E-02	-0.26677E-02
17	0.	-0.12589E-01	-0.18697E-02
18	0.	-0.13203E-01	-0.16669E-02
19	0.	-0.12421E-01	-0.33285E-03
20	0.	0.	0.
21	0.	0.	0.
22	0.	0.	0.
23	0.	0.	0.
24	0.	0.	0.
25	0.	0.	0.
26	0.	0.	0.
27	-0.27296E-02	-0.84957E-02	-0.28154E-02
28	-0.37285E-02	-0.10755E-01	-0.31625E-02
29	-0.25595E-02	-0.12725E-01	-0.33557E-02
30	-0.23805E-17	-0.13506E-01	-0.35044E-02
31	0.25595E-02	-0.12725E-01	-0.33557E-02
32	0.37285E-02	-0.10755E-01	-0.31625E-02
33	0.27296E-02	-0.84957E-02	-0.28154E-02
34	-0.57350E-02	-0.15740E-01	-0.20581E-02
35	-0.79552E-02	-0.22734E-01	-0.20997E-02
36	-0.56030E-02	-0.28431E-01	-0.25534E-02
37	-0.86465E-17	-0.31023E-01	-0.23510E-02

***** POST1 NODAL DEGREE OF FREEDOM LISTING *****

LOAD STEP= 1 SUBSTEP= 6
TIME= 7.5000 LOAD CASE= 0

THE FOLLOWING DEGREE OF FREEDOM RESULTS ARE IN GLOBAL COORDINATES

NODE	UX	UY	UZ
38	0.56030E-02	-0.28431E-01	-0.25534E-02
39	0.79552E-02	-0.22734E-01	-0.20997E-02
40	0.57350E-02	-0.15740E-01	-0.20581E-02
41	-0.84346E-02	-0.18911E-01	-0.17207E-02
42	-0.14584E-01	-0.33810E-01	-0.34399E-02
43	-0.10983E-01	-0.54835E-01	-0.85613E-02
44	-0.11863E-16	-0.61929E-01	-0.10828E-01
45	0.10983E-01	-0.54835E-01	-0.85613E-02
46	0.14584E-01	-0.33810E-01	-0.34399E-02

47	0.84346E-02	-0.18911E-01	-0.17207E-02
48	-0.38432E-02	-0.17228E-01	-0.10691E-02
49	-0.14851E-01	-0.39279E-01	-0.29483E-02
50	-0.28086E-01	-0.10072	-0.18943E-01
51	-0.18146E-16	-0.16076	-0.45126E-01
52	0.28086E-01	-0.10072	-0.18943E-01
53	0.14851E-01	-0.39279E-01	-0.29483E-02
54	0.38432E-02	-0.17228E-01	-0.10691E-02
55	0.	0.	0.
56	0.	0.	0.
57	0.	0.	0.
58	0.	0.	0.
59	0.	0.	0.
60	0.	0.	0.
61	0.	0.	0.
62	0.	0.	0.
63	0.	0.	0.
64	0.	-0.12616E-01	-0.11985E-02
65	0.	-0.74743E-02	0.26677E-02
66	0.	-0.12589E-01	0.18697E-02
67	0.	-0.13203E-01	0.16669E-02
68	0.	-0.12421E-01	0.33285E-03
69	0.	-0.12616E-01	-0.11985E-02
70	-0.72851E-02	-0.17817E-01	-0.11729E-02
71	-0.19750E-01	-0.37498E-01	-0.44640E-02
72	-0.27037E-01	-0.14826	0.21817E-01
73	0.70424E-16	-0.32952	0.81479E-01
74	0.27037E-01	-0.14826	0.21817E-01

***** POST1 NODAL DEGREE OF FREEDOM LISTING *****

LOAD STEP= 1 SUBSTEP= 6
TIME= 7.5000 LOAD CASE= 0

THE FOLLOWING DEGREE OF FREEDOM RESULTS ARE IN GLOBAL COORDINATES

NODE	UX	UY	UZ
75	0.19750E-01	-0.37498E-01	-0.44640E-02
76	0.72851E-02	-0.17817E-01	-0.11729E-02
77	0.	-0.12421E-01	0.33285E-03
78	0.	-0.13203E-01	0.16669E-02
79	0.	-0.12589E-01	0.18697E-02
80	0.	-0.74743E-02	0.26677E-02
81	-0.27296E-02	-0.84957E-02	0.28154E-02
82	-0.57350E-02	-0.15740E-01	0.20581E-02
83	-0.84346E-02	-0.18911E-01	0.17207E-02
84	-0.38432E-02	-0.17228E-01	0.10691E-02
85	-0.37285E-02	-0.10755E-01	0.31625E-02
86	-0.79552E-02	-0.22734E-01	0.20997E-02
87	-0.14584E-01	-0.33810E-01	0.34399E-02
88	-0.14851E-01	-0.39279E-01	0.29483E-02
89	-0.25595E-02	-0.12725E-01	0.33557E-02
90	-0.56030E-02	-0.28431E-01	0.25534E-02
91	-0.10983E-01	-0.54835E-01	0.85613E-02
92	-0.28086E-01	-0.10072	0.18943E-01
93	0.20569E-17	-0.13506E-01	0.35044E-02
94	0.68705E-18	-0.31023E-01	0.23510E-02
95	0.10880E-16	-0.61929E-01	0.10828E-01
96	0.18272E-16	-0.16076	0.45126E-01
97	0.25595E-02	-0.12725E-01	0.33557E-02
98	0.56030E-02	-0.28431E-01	0.25534E-02
99	0.10983E-01	-0.54835E-01	0.85613E-02
100	0.28086E-01	-0.10072	0.18943E-01
101	0.37285E-02	-0.10755E-01	0.31625E-02
102	0.79552E-02	-0.22734E-01	0.20997E-02
103	0.14584E-01	-0.33810E-01	0.34399E-02

```
  104  0.14851E-01-0.39279E-01 0.29483E-02
  105  0.27296E-02-0.84957E-02 0.28154E-02
  106  0.57350E-02-0.15740E-01 0.20581E-02
  107  0.84346E-02-0.18911E-01 0.17207E-02
  108  0.38432E-02-0.17228E-01 0.10691E-02

***** POST1 NODAL DEGREE OF FREEDOM LISTING *****

LOAD STEP=     1  SUBSTEP=     6
 TIME=    7.5000      LOAD CASE=   0

THE FOLLOWING DEGREE OF FREEDOM RESULTS ARE IN GLOBAL COORDINATES

 NODE      UX          UY          UZ

MAXIMUM ABSOLUTE VALUES
NODE        52          11          11
VALUE   0.28086E-01-0.32952    -0.81479E-01
```

PRINT S NODAL SOLUTION PER NODE

***** POST1 NODAL STRESS LISTING *****

LOAD STEP= 1 SUBSTEP= 6
TIME= 7.5000 LOAD CASE= 0
SHELL DATA ARE AT TOP

THE FOLLOWING X,Y,Z VALUES ARE IN GLOBAL COORDINATES

NODE	SX	SY	SZ	SXY	SYZ	SXZ
1	52.557	3.3673	-0.15756E-02	1.5078	-0.95670	0.95670
2	-29.566	-65.627	-28.558	-5.0495	0.19893	0.19893
3	-28.207	-4.3784	-5.1157	-3.2331	-0.18942E-01	-0.93776
4	-63.776	-14.176	-0.48595E-01	-11.767	0.36873	0.55009
5	-54.085	-35.497	-0.69918	-12.612	-0.63306E-01	-0.11805
6	-35.453	-57.327	9.5132	-7.3566	0.12684	-0.72090E-01
7	52.557	3.3673	-0.15756E-02	-1.5078	-0.95670	-0.95670
8	72.632	3.7309	6.4880	-3.4438	-3.0016	-3.9584
9	30.908	-37.760	-19.709	29.010	4.8093	-1.4169
10	-100.39	-180.03	-3.8116	60.498	0.36694	2.7042
11	-125.55	-275.26	26.802	0.	-3.2299	0.
12	-100.39	-180.03	-3.8116	-60.498	0.36694	-2.7042
13	30.908	-37.760	-19.709	-29.010	4.8093	1.4169
14	72.632	3.7309	6.4880	3.4438	-3.0016	3.9584
15	-29.566	-65.627	-28.558	5.0495	0.19893	-0.19893
16	-35.453	-57.327	9.5132	7.3566	0.12684	0.72090E-01
17	-54.085	-35.497	-0.69918	12.612	-0.63306E-01	0.11805
18	-63.776	-14.176	-0.48595E-01	11.767	0.36873	-0.55009
19	-28.207	-4.3784	-5.1157	3.2331	-0.18942E-01	0.93776
20	-32.013	-72.699	-31.413	-8.3924	0.13413	0.33306
21	-37.816	-88.501	-37.895	-11.425	-0.10358	0.36361
22	-42.831	-102.14	-43.491	-7.8062	-0.29884E-01	0.23015
23	-45.114	-107.70	-45.843	0.	-0.20027	0.
24	-42.831	-102.14	-43.491	7.8062	-0.29884E-01	-0.23015
25	-37.816	-88.501	-37.895	11.425	-0.10358	-0.36361
26	-32.013	-72.699	-31.413	8.3924	0.13413	-0.33306
27	-31.740	-67.468	9.6535	-12.160	-0.49406E-01	-0.25563
28	-22.399	-89.196	10.796	-16.287	0.13866	-0.19693
29	-15.161	-107.24	10.258	-11.089	-0.22077	-0.14559
30	-11.305	-114.86	11.213	0.	0.13621	0.
31	-15.161	-107.24	10.258	11.089	-0.22077	0.14559
32	-22.399	-89.196	10.796	16.287	0.13866	0.19693
33	-31.740	-67.468	9.6535	12.160	-0.49406E-01	0.25563
34	-44.800	-49.170	0.62242	-22.361	0.49344	0.60833
35	-29.004	-93.284	-5.2338	-31.403	0.73466E-01	1.0752
36	-10.671	-122.84	-3.4444	-21.493	-0.44389	0.60781

***** POST1 NODAL STRESS LISTING *****

LOAD STEP= 1 SUBSTEP= 6
TIME= 7.5000 LOAD CASE= 0
SHELL DATA ARE AT TOP

THE FOLLOWING X,Y,Z VALUES ARE IN GLOBAL COORDINATES

NODE	SX	SY	SZ	SXY	SYZ	SXZ
37	-3.8296	-133.91	-5.6197	0.	-0.20365	0.
38	-10.671	-122.84	-3.4444	21.493	-0.44389	-0.60781
39	-29.004	-93.284	-5.2338	31.403	0.73466E-01	-1.0752
40	-44.800	-49.170	0.62242	22.361	0.49344	-0.60833
41	-61.800	-23.123	-1.3878	-27.370	0.43404	-0.23569
42	-45.823	-87.408	6.7364	-49.145	0.40131	-0.24078
43	-30.310	-142.10	1.2334	-39.714	0.87464E-01	0.80153
44	-34.011	-180.56	-10.174	0.	-2.0547	0.

45	-30.310	-142.10	1.2334	39.714	0.87464E-01	-0.80153
46	-45.823	-87.408	6.7364	49.145	0.40131	0.24078
47	-61.800	-23.123	-1.3878	27.370	0.43404	0.23569
48	-56.160	-4.8012	-3.3207	-11.251	-1.6767	-2.2627
49	-83.445	-48.876	5.2813	-41.302	2.8414	-1.5767
50	-66.101	-166.23	2.3246	-56.907	0.22565	0.76926E-01
51	-63.335	-255.81	1.2168	0.	-2.9833	0.
52	-66.101	-166.23	2.3246	56.907	0.22565	-0.76926E-01
53	-83.445	-48.876	5.2813	41.302	2.8414	1.5767
54	-56.160	-4.8012	-3.3207	11.251	-1.6767	2.2627
55	-29.566	-65.627	-28.558	-5.0495	-0.19893	-0.19893
56	-29.566	-65.627	-28.558	5.0495	-0.19893	0.19893
57	-32.013	-72.699	-31.413	-8.3924	-0.13413	-0.33306
58	-37.816	-88.501	-37.895	-11.425	0.10358	-0.36361
59	-42.831	-102.14	-43.491	-7.8062	0.29884E-01	-0.23015
60	-45.114	-107.70	-45.843	0.	0.20027	0.
61	-42.831	-102.14	-43.491	7.8062	0.29884E-01	0.23015
62	-37.816	-88.501	-37.895	11.425	0.10358	0.36361
63	-32.013	-72.699	-31.413	8.3924	-0.13413	0.33306
64	52.557	3.3673	-0.15756E-02	-1.5078	0.95670	0.95670
65	-35.453	-57.327	9.5132	7.3566	-0.12684	-0.72090E-01
66	-54.085	-35.497	-0.69918	12.612	0.63306E-01	-0.11805
67	-63.776	-14.176	-0.48595E-01	11.767	-0.36873	0.55009
68	-28.207	-4.3784	-5.1157	3.2331	0.18942E-01	-0.93776
69	52.557	3.3673	-0.15756E-02	1.5078	0.95670	-0.95670
70	72.632	3.7309	6.4880	-3.4438	3.0016	3.9584
71	30.908	-37.760	-19.709	29.010	-4.8093	1.4169
72	-100.39	-180.03	-3.8116	60.498	-0.36694	-2.7042

***** POST1 NODAL STRESS LISTING *****

LOAD STEP= 1 SUBSTEP= 6
TIME= 7.5000 LOAD CASE= 0
SHELL DATA ARE AT TOP

THE FOLLOWING X,Y,Z VALUES ARE IN GLOBAL COORDINATES

NODE	SX	SY	SZ	SXY	SYZ	SXZ
73	-125.55	-275.26	26.802	0.	3.2299	0.
74	-100.39	-180.03	-3.8116	-60.498	-0.36694	2.7042
75	30.908	-37.760	-19.709	-29.010	-4.8093	-1.4169
76	72.632	3.7309	6.4880	3.4438	3.0016	-3.9584
77	-28.207	-4.3784	-5.1157	-3.2331	0.18942E-01	0.93776
78	-63.776	-14.176	-0.48595E-01	-11.767	-0.36873	-0.55009
79	-54.085	-35.497	-0.69918	-12.612	0.63306E-01	0.11805
80	-35.453	-57.327	9.5132	-7.3566	-0.12684	0.72090E-01
81	-31.740	-67.468	9.6535	-12.160	0.49406E-01	0.25563
82	-44.800	-49.170	0.62242	-22.361	-0.49344	-0.60833
83	-61.800	-23.123	-1.3878	-27.370	-0.43404	0.23569
84	-56.160	-4.8012	-3.3207	-11.251	1.6767	2.2627
85	-22.399	-89.196	10.796	-16.287	-0.13866	0.19693
86	-29.004	-93.284	-5.2338	-31.403	-0.73466E-01	-1.0752
87	-45.823	-87.408	6.7364	-49.145	-0.40131	0.24078
88	-83.445	-48.876	5.2813	-41.302	-2.8414	1.5767
89	-15.161	-107.24	10.258	-11.089	0.22077	0.14559
90	-10.671	-122.84	-3.4444	-21.493	0.44389	-0.60781
91	-30.310	-142.10	1.2334	-39.714	-0.87464E-01	-0.80153
92	-66.101	-166.23	2.3246	-56.907	-0.22565	-0.76926E-01
93	-11.305	-114.86	11.213	0.	-0.13621	0.
94	-3.8296	-133.91	-5.6197	0.	0.20365	0.
95	-34.011	-180.56	-10.174	0.	2.0547	0.
96	-63.335	-255.81	1.2168	0.	2.9833	0.
97	-15.161	-107.24	10.258	11.089	0.22077	-0.14559
98	-10.671	-122.84	-3.4444	21.493	0.44389	0.60781
99	-30.310	-142.10	1.2334	39.714	-0.87464E-01	0.80153
100	-66.101	-166.23	2.3246	56.907	-0.22565	0.76926E-01

101	-22.399	-89.196	10.796	16.287	-0.13866	-0.19693
102	-29.004	-93.284	-5.2338	31.403	-0.73466E-01	1.0752
103	-45.823	-87.408	6.7364	49.145	-0.40131	-0.24078
104	-83.445	-48.876	5.2813	41.302	-2.8414	-1.5767
105	-31.740	-67.468	9.6535	12.160	0.49406E-01	-0.25563
106	-44.800	-49.170	0.62242	22.361	-0.49344	0.60833
107	-61.800	-23.123	-1.3878	27.370	-0.43404	-0.23569
108	-56.160	-4.8012	-3.3207	11.251	1.6767	-2.2627

***** POST1 NODAL STRESS LISTING *****

LOAD STEP= 1 SUBSTEP= 6
TIME= 7.5000 LOAD CASE= 0
SHELL DATA ARE AT TOP

THE FOLLOWING X,Y,Z VALUES ARE IN GLOBAL COORDINATES

NODE	SX	SY	SZ	SXY	SYZ	SXZ
MINIMUM VALUES						
NODE	11	11	60	12	71	8
VALUE	-125.55	-275.26	-45.843	-60.498	-4.8093	-3.9584
MAXIMUM VALUES						
NODE	76	76	73	10	13	14
VALUE	72.632	3.7309	26.802	60.498	4.8093	3.9584

Problem 4.

A rectangular plate (or half space) of elastic-plastic material subjected to sinusoidal loadings (Mises criterion and associated flow rule)

(Loading does reach plastic yielding, solutions are essentially elastic)

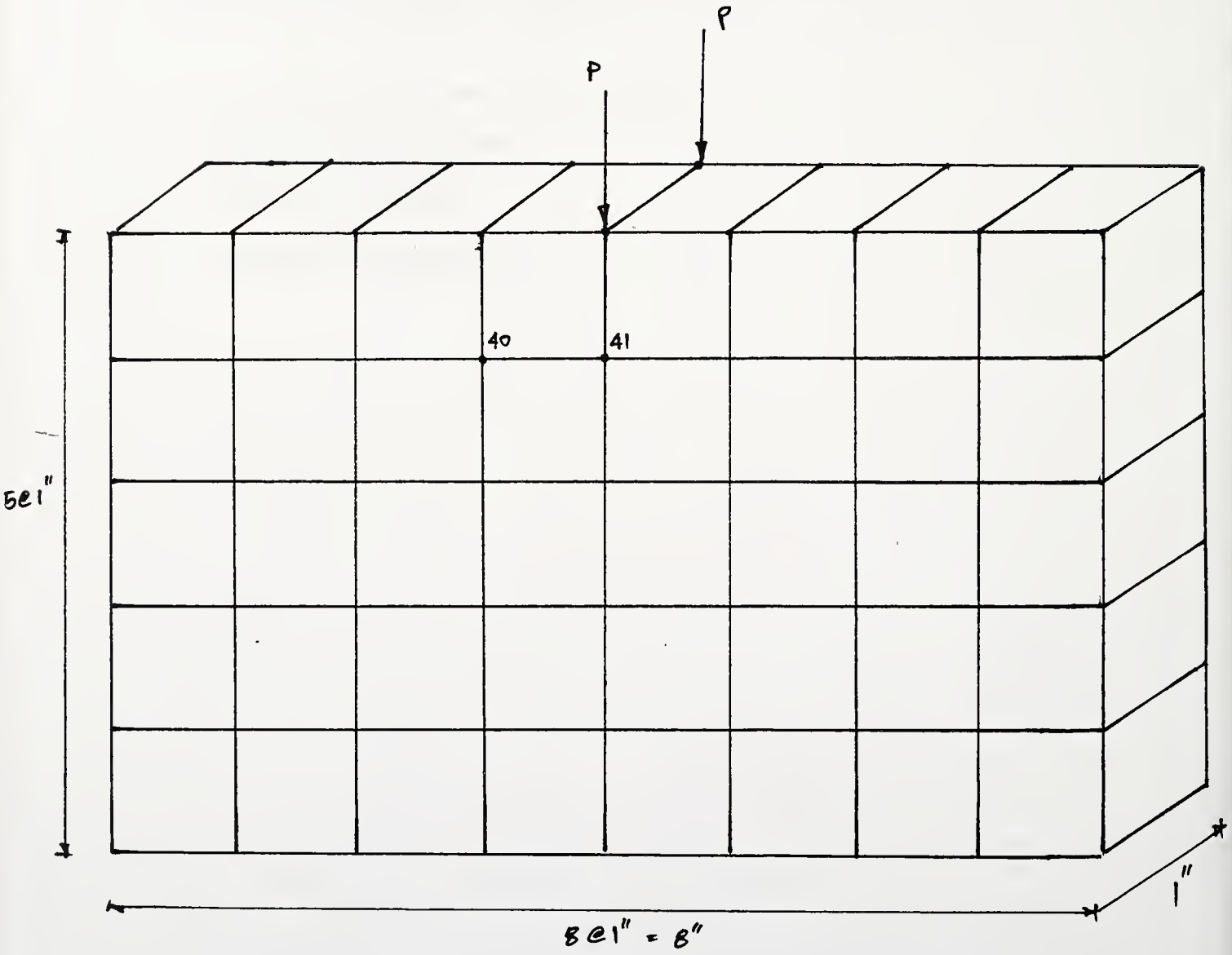
- **Problem description and loading functions**
- **Deflection and stress plots**
- **Input file for Soild3D**
- **Sample output of Soild3D**

Problem description and loading functions

3D Straight Edge Boundary with sinusoidal force (J2 material)

Input:

1. Geometry and finite element mesh are shown below:



2. Material Properites are shown as the followings:

E	=	15000 psi
υ	=	0.3
ρ	=	7.4e-2 lb-sec^2/in^4
Ft	=	360 psi (tensile strength)
Et	=	500 psi

Assumed kinematic work-hardening J2 material.

3. Sinusoidal load function is the following:

$$F(t) = \mathrm{A}\sin(\Omega * n\Delta t)$$

A = -25 lb

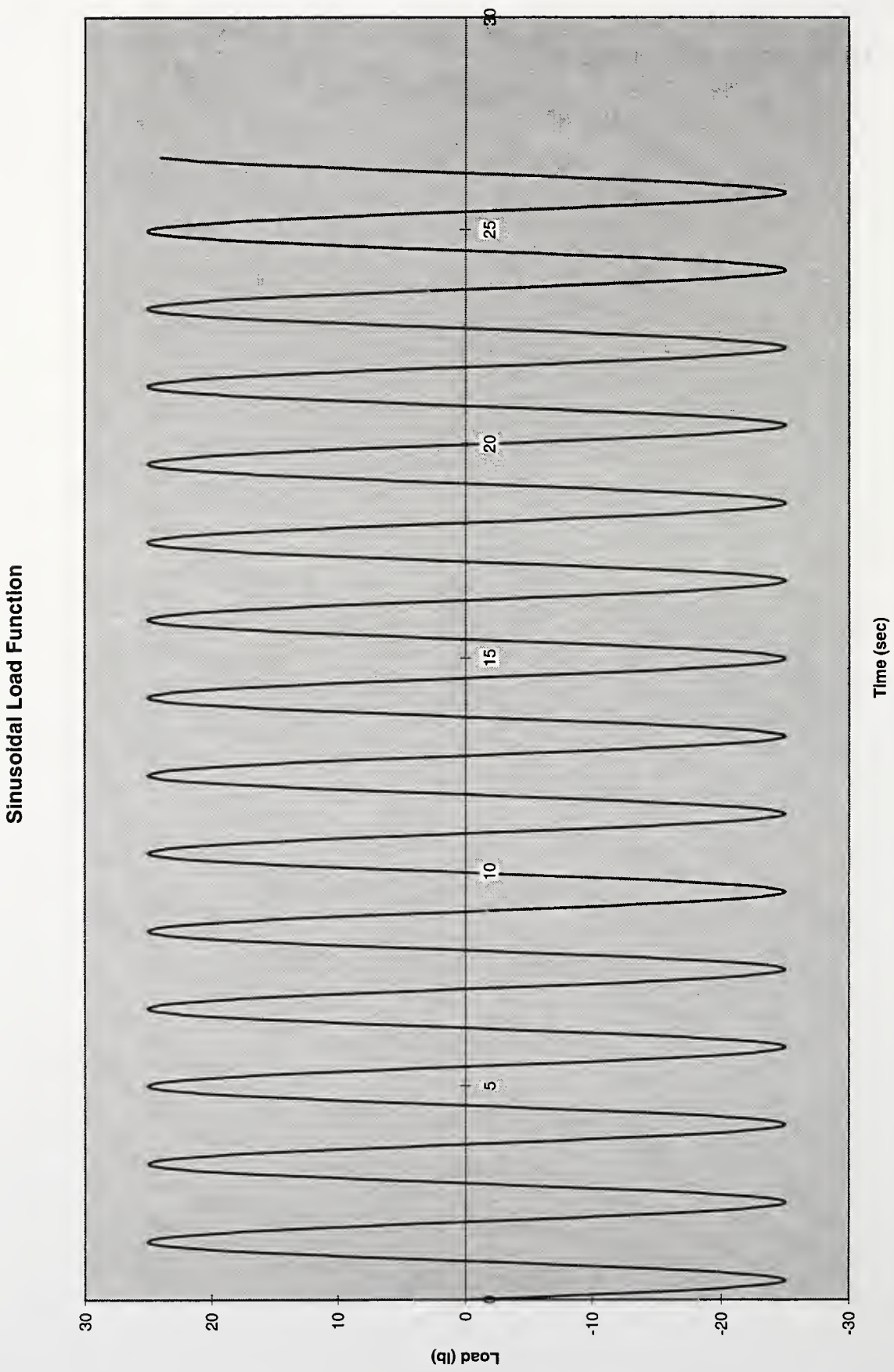
Ω = 3.46 rad/sec

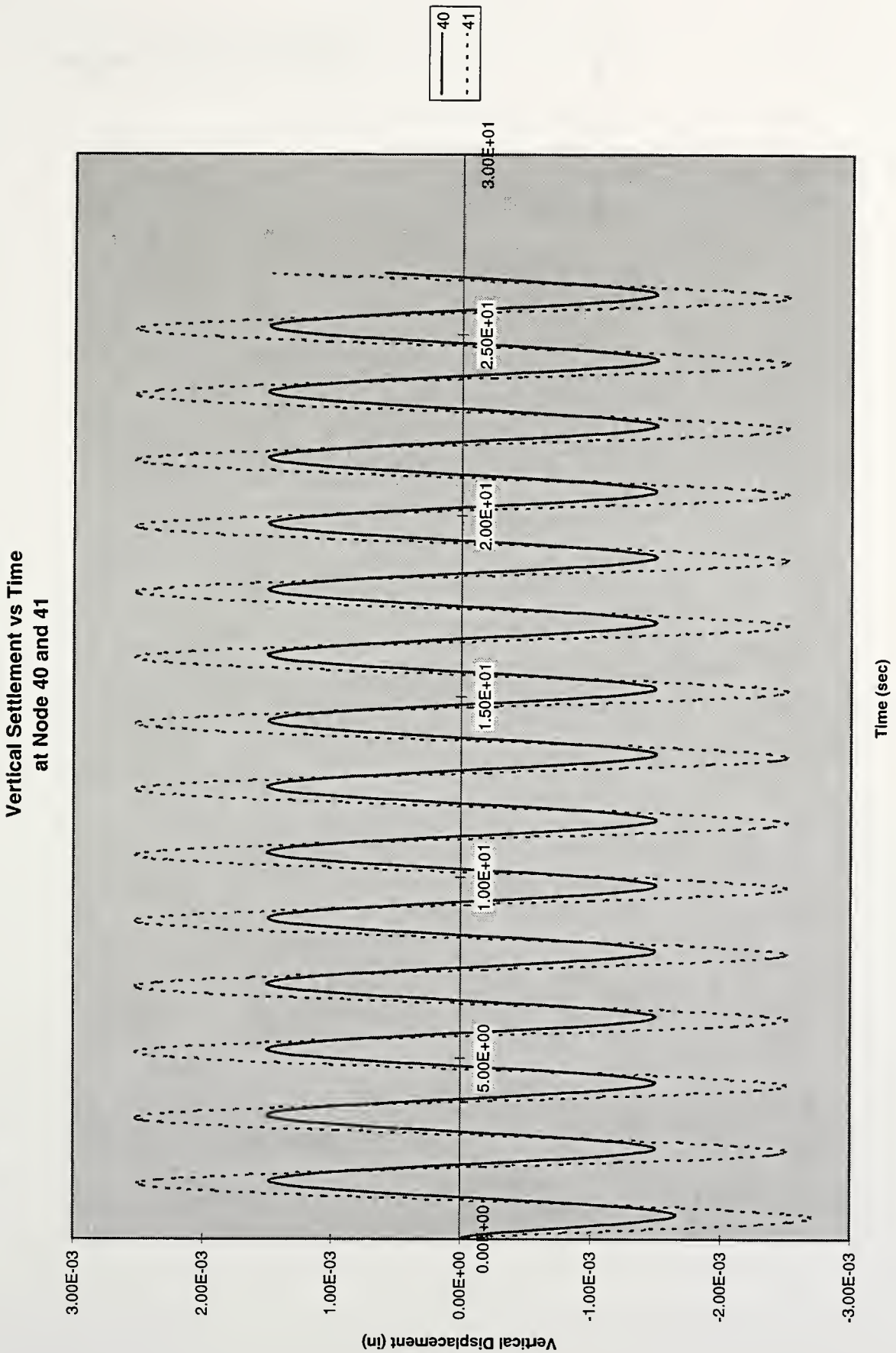
4. The input dat file and output result are shown after load function.

Problem results

The vertical settlements are plotted against time.

Deflection and stress plots


Sinusoidal Load Function
Load (lb)
30
20
10
0
-10
-20
-30
5
10
15
20
25
30
Time (sec)


Vertical Settlement vs Time
at Node 40 and 41
40
41
Vertical Displacement (in)
3.00E-03
2.00E-03
1.00E-03
0.00E+00
-1.00E-03
-2.00E-03
-3.00E-03
0.00E+00
5.00E+00
1.00E+01
1.50E+01
2.00E+01
2.50E+01
3.00E+01
Time (sec)

Input file for Solid3D

```
3D Straight edge boundary w/ sinusoidal load on J2 material
500 108 40 1 3 3 1000000  1.e-4  1.e+4  1.e-10  0.
0 2 0 1
1     0.    0.    1.    1   1   1
2     1.    0.    1.    1   1   1
3     2.    0.    1.    1   1   1
4     3.    0.    1.    1   1   1
5     4.    0.    1.    1   1   1
6     5.    0.    1.    1   1   1
7     6.    0.    1.    1   1   1
8     7.    0.    1.    1   1   1
9     8.    0.    1.    1   1   1
10    0.    1.    1.    1   0   0
11    1.    1.    1.    0   0   0
12    2.    1.    1.    0   0   0
13    3.    1.    1.    0   0   0
14    4.    1.    1.    0   0   0
15    5.    1.    1.    0   0   0
16    6.    1.    1.    0   0   0
17    7.    1.    1.    0   0   0
18    8.    1.    1.    1   0   0
19    0.    2.    1.    1   0   0
20    1.    2.    1.    0   0   0
21    2.    2.    1.    0   0   0
22    3.    2.    1.    0   0   0
23    4.    2.    1.    0   0   0
24    5.    2.    1.    0   0   0
25    6.    2.    1.    0   0   0
26    7.    2.    1.    0   0   0
27    8.    2.    1.    1   0   0
28    0.    3.    1.    1   0   0
29    1.    3.    1.    0   0   0
30    2.    3.    1.    0   0   0
31    3.    3.    1.    0   0   0
32    4.    3.    1.    0   0   0
33    5.    3.    1.    0   0   0
34    6.    3.    1.    0   0   0
35    7.    3.    1.    0   0   0
36    8.    3.    1.    1   0   0
37    0.    4.    1.    1   0   0
38    1.    4.    1.    0   0   0
39    2.    4.    1.    0   0   0
40    3.    4.    1.    0   0   0
41    4.    4.    1.    0   0   0
42    5.    4.    1.    0   0   0
43    6.    4.    1.    0   0   0
44    7.    4.    1.    0   0   0
45    8.    4.    1.    1   0   0
46    0.    5.    1.    1   0   0
47    1.    5.    1.    0   0   0
48    2.    5.    1.    0   0   0
49    3.    5.    1.    0   0   0
50    4.    5.    1.    0   0   0
51    5.    5.    1.    0   0   0
52    6.    5.    1.    0   0   0
53    7.    5.    1.    0   0   0
54    8.    5.    1.    1   0   0
55    0.    0.    0.    1   1   1
56    1.    0.    0.    1   1   1
57    2.    0.    0.    1   1   1
```

```
58     3.     0.     0.     1    1    1
59     4.     0.     0.     1    1    1
60     5.     0.     0.     1    1    1
61     6.     0.     0.     1    1    1
62     7.     0.     0.     1    1    1
63     8.     0.     0.     1    1    1
64     0.     1.     0.     1    0    0
65     1.     1.     0.     0    0    0
66     2.     1.     0.     0    0    0
67     3.     1.     0.     0    0    0
68     4.     1.     0.     0    0    0
69     5.     1.     0.     0    0    0
70     6.     1.     0.     0    0    0
71     7.     1.     0.     0    0    0
72     8.     1.     0.     1    0    0
73     0.     2.     0.     1    0    0
74     1.     2.     0.     0    0    0
75     2.     2.     0.     0    0    0
76     3.     2.     0.     0    0    0
77     4.     2.     0.     0    0    0
78     5.     2.     0.     0    0    0
79     6.     2.     0.     0    0    0
80     7.     2.     0.     0    0    0
81     8.     2.     0.     1    0    0
82     0.     3.     0.     1    0    0
83     1.     3.     0.     0    0    0
84     2.     3.     0.     0    0    0
85     3.     3.     0.     0    0    0
86     4.     3.     0.     0    0    0
87     5.     3.     0.     0    0    0
88     6.     3.     0.     0    0    0
89     7.     3.     0.     0    0    0
90     8.     3.     0.     1    0    0
91     0.     4.     0.     1    0    0
92     1.     4.     0.     0    0    0
93     2.     4.     0.     0    0    0
94     3.     4.     0.     0    0    0
95     4.     4.     0.     0    0    0
96     5.     4.     0.     0    0    0
97     6.     4.     0.     0    0    0
98     7.     4.     0.     0    0    0
99     8.     4.     0.     1    0    0
100    0.     5.     0.     1    0    0
101    1.     5.     0.     0    0    0
102    2.     5.     0.     0    0    0
103    3.     5.     0.     0    0    0
104    4.     5.     0.     0    0    0
105    5.     5.     0.     0    0    0
106    6.     5.     0.     0    0    0
107    7.     5.     0.     0    0    0
108    8.     5.     0.     1    0    0
1   1   2   11   10   55   56   65   64   1   1   1   1   1
2   2   3   12   11   56   57   66   65   1   1   2   1   1
3   3   4   13   12   57   58   67   66   1   1   3   1   1
4   4   5   14   13   58   59   68   67   1   1   4   1   1
5   5   6   15   14   59   60   69   68   1   1   5   1   1
6   6   7   16   15   60   61   70   69   1   1   6   1   1
7   7   8   17   16   61   62   71   70   1   1   7   1   1
8   8   9   18   17   62   63   72   71   1   1   8   1   1
9    10   11   20   19   64   65   74   73   1   2   1   1   1
```

```
10  11  12  21  20  65  66  75  74  1  2  2  1  1
11  12  13  22  21  66  67  76  75  1  2  3  1  1
12  13  14  23  22  67  68  77  76  1  2  4  1  1
13  14  15  24  23  68  69  78  77  1  2  5  1  1
14  15  16  25  24  69  70  79  78  1  2  6  1  1
15  16  17  26  25  70  71  80  79  1  2  7  1  1
16  17  18  27  26  71  72  81  80  1  2  8  1  1
17  19  20  29  28  73  74  83  82  1  3  1  1  1
18  20  21  30  29  74  75  84  83  1  3  2  1  1
19  21  22  31  30  75  76  85  84  1  3  3  1  1
20  22  23  32  31  76  77  86  85  1  3  4  1  1
21  23  24  33  32  77  78  87  86  1  3  5  1  1
22  24  25  34  33  78  79  88  87  1  3  6  1  1
23  25  26  35  34  79  80  89  88  1  3  7  1  1
24  26  27  36  35  80  81  90  89  1  3  8  1  1
25  28  29  38  37  82  83  92  91  1  4  1  1  1
26  29  30  39  38  83  84  93  92  1  4  2  1  1
27  30  31  40  39  84  85  94  93  1  4  3  1  1
28  31  32  41  40  85  86  95  94  1  4  4  1  1
29  32  33  42  41  86  87  96  95  1  4  5  1  1
30  33  34  43  42  87  88  97  96  1  4  6  1  1
31  34  35  44  43  88  89  98  97  1  4  7  1  1
32  35  36  45  44  89  90  99  98  1  4  8  1  1
33  37  38  47  46  91  92  101  100  1  5  1  1  1
34  38  39  48  47  92  93  102  101  1  5  2  1  1
35  39  40  49  48  93  94  103  102  1  5  3  1  1
36  40  41  50  49  94  95  104  103  1  5  4  1  1
37  41  42  51  50  95  96  105  104  1  5  5  1  1
38  42  43  52  51  96  97  106  105  1  5  6  1  1
39  43  44  53  52  97  98  107  106  1  5  7  1  1
40  44  45  54  53  98  99  108  107  1  5  8  1  1
1 1 7.4e-2  15000.0  0.30  360.
0.   0.  2   500.   0.

2
50 2  -25. 3.46
104 2 -25. 3.46

40 0 2
41 0 2
42 0 2
```

Sample output file for Solid3D

card 1 3D Straight edge boundary w/ sinusoidal load on J2 material

---

card 2 parameter card

no of time-steps skipped between outputs	=	500
number of nodes	=	108
number of elements	=	40
number of materials	=	1
number of output req	=	3
no. of d.o.f/node	=	3
no. of time steps	=	1000000
time increment	=	.100E-03
coeff of mass damping	=	.100E+05
tolerance limit	=	.100E-09
acceleration of gravity	=	.00000

card 3 index card

index for accel.	=	0
index for force	=	2
index for I. C.	=	0
index for mesh output(1) or not(0)	=	1

card 4 nodal point data

node no.	x-ord	y-ord	z-ord	ifx	ify	ifz
1	.00	.00	1.00	1	1	1
2	1.00	.00	1.00	1	1	1
3	2.00	.00	1.00	1	1	1
4	3.00	.00	1.00	1	1	1
5	4.00	.00	1.00	1	1	1
6	5.00	.00	1.00	1	1	1
7	6.00	.00	1.00	1	1	1
8	7.00	.00	1.00	1	1	1
9	8.00	.00	1.00	1	1	1
10	.00	1.00	1.00	1	0	0
11	1.00	1.00	1.00	0	0	0
12	2.00	1.00	1.00	0	0	0
13	3.00	1.00	1.00	0	0	0
14	4.00	1.00	1.00	0	0	0
15	5.00	1.00	1.00	0	0	0
16	6.00	1.00	1.00	0	0	0
17	7.00	1.00	1.00	0	0	0
18	8.00	1.00	1.00	1	0	0
19	.00	2.00	1.00	1	0	0
20	1.00	2.00	1.00	0	0	0
21	2.00	2.00	1.00	0	0	0
22	3.00	2.00	1.00	0	0	0
23	4.00	2.00	1.00	0	0	0
24	5.00	2.00	1.00	0	0	0
25	6.00	2.00	1.00	0	0	0
26	7.00	2.00	1.00	0	0	0
27	8.00	2.00	1.00	1	0	0
28	.00	3.00	1.00	1	0	0
29	1.00	3.00	1.00	0	0	0
30	2.00	3.00	1.00	0	0	0
31	3.00	3.00	1.00	0	0	0
32	4.00	3.00	1.00	0	0	0
33	5.00	3.00	1.00	0	0	0
34	6.00	3.00	1.00	0	0	0
35	7.00	3.00	1.00	0	0	0
36	8.00	3.00	1.00	1	0	0

37	.00	4.00	1.00	1	0	0
38	1.00	4.00	1.00	0	0	0
39	2.00	4.00	1.00	0	0	0
40	3.00	4.00	1.00	0	0	0
41	4.00	4.00	1.00	0	0	0
42	5.00	4.00	1.00	0	0	0
43	6.00	4.00	1.00	0	0	0
44	7.00	4.00	1.00	0	0	0
45	8.00	4.00	1.00	1	0	0
46	.00	5.00	1.00	1	0	0
47	1.00	5.00	1.00	0	0	0
48	2.00	5.00	1.00	0	0	0
49	3.00	5.00	1.00	0	0	0
50	4.00	5.00	1.00	0	0	0
51	5.00	5.00	1.00	0	0	0
52	6.00	5.00	1.00	0	0	0
53	7.00	5.00	1.00	0	0	0
54	8.00	5.00	1.00	1	0	0
55	.00	.00	.00	1	1	1
56	1.00	.00	.00	1	1	1
57	2.00	.00	.00	1	1	1
58	3.00	.00	.00	1	1	1
59	4.00	.00	.00	1	1	1
60	5.00	.00	.00	1	1	1
61	6.00	.00	.00	1	1	1
62	7.00	.00	.00	1	1	1
63	8.00	.00	.00	1	1	1
64	.00	1.00	.00	1	0	0
65	1.00	1.00	.00	0	0	0
66	2.00	1.00	.00	0	0	0
67	3.00	1.00	.00	0	0	0
68	4.00	1.00	.00	0	0	0
69	5.00	1.00	.00	0	0	0
70	6.00	1.00	.00	0	0	0
71	7.00	1.00	.00	0	0	0
72	8.00	1.00	.00	1	0	0
73	.00	2.00	.00	1	0	0
74	1.00	2.00	.00	0	0	0
75	2.00	2.00	.00	0	0	0
76	3.00	2.00	.00	0	0	0
77	4.00	2.00	.00	0	0	0
78	5.00	2.00	.00	0	0	0
79	6.00	2.00	.00	0	0	0
80	7.00	2.00	.00	0	0	0
81	8.00	2.00	.00	1	0	0
82	.00	3.00	.00	1	0	0
83	1.00	3.00	.00	0	0	0
84	2.00	3.00	.00	0	0	0
85	3.00	3.00	.00	0	0	0
86	4.00	3.00	.00	0	0	0
87	5.00	3.00	.00	0	0	0
88	6.00	3.00	.00	0	0	0
89	7.00	3.00	.00	0	0	0
90	8.00	3.00	.00	1	0	0
91	.00	4.00	.00	1	0	0
92	1.00	4.00	.00	0	0	0
93	2.00	4.00	.00	0	0	0
94	3.00	4.00	.00	0	0	0
95	4.00	4.00	.00	0	0	0
96	5.00	4.00	.00	0	0	0

97	6.00	4.00	.00	0	0	0
98	7.00	4.00	.00	0	0	0
99	8.00	4.00	.00	1	0	0
100	.00	5.00	.00	1	0	0
101	1.00	5.00	.00	0	0	0
102	2.00	5.00	.00	0	0	0
103	3.00	5.00	.00	0	0	0
104	4.00	5.00	.00	0	0	0
105	5.00	5.00	.00	0	0	0
106	6.00	5.00	.00	0	0	0
107	7.00	5.00	.00	0	0	0
108	8.00	5.00	.00	1	0	0

card 5 element data

ele.no.	N1	N2	N3	N4	N5	N6	N7	N8	mat	row	col	E-con.
1	1	2	11	10	55	56	65	64	1	1	1	1
2	2	3	12	11	56	57	66	65	1	1	2	1
3	3	4	13	12	57	58	67	66	1	1	3	1
4	4	5	14	13	58	59	68	67	1	1	4	1
5	5	6	15	14	59	60	69	68	1	1	5	1
6	6	7	16	15	60	61	70	69	1	1	6	1
7	7	8	17	16	61	62	71	70	1	1	7	1
8	8	9	18	17	62	63	72	71	1	1	8	1
9	10	11	20	19	64	65	74	73	1	2	1	1
10	11	12	21	20	65	66	75	74	1	2	2	1
11	12	13	22	21	66	67	76	75	1	2	3	1
12	13	14	23	22	67	68	77	76	1	2	4	1
13	14	15	24	23	68	69	78	77	1	2	5	1
14	15	16	25	24	69	70	79	78	1	2	6	1
15	16	17	26	25	70	71	80	79	1	2	7	1
16	17	18	27	26	71	72	81	80	1	2	8	1
17	19	20	29	28	73	74	83	82	1	3	1	1
18	20	21	30	29	74	75	84	83	1	3	2	1
19	21	22	31	30	75	76	85	84	1	3	3	1
20	22	23	32	31	76	77	86	85	1	3	4	1
21	23	24	33	32	77	78	87	86	1	3	5	1
22	24	25	34	33	78	79	88	87	1	3	6	1
23	25	26	35	34	79	80	89	88	1	3	7	1
24	26	27	36	35	80	81	90	89	1	3	8	1
25	28	29	38	37	82	83	92	91	1	4	1	1
26	29	30	39	38	83	84	93	92	1	4	2	1
27	30	31	40	39	84	85	94	93	1	4	3	1
28	31	32	41	40	85	86	95	94	1	4	4	1
29	32	33	42	41	86	87	96	95	1	4	5	1
30	33	34	43	42	87	88	97	96	1	4	6	1
31	34	35	44	43	88	89	98	97	1	4	7	1
32	35	36	45	44	89	90	99	98	1	4	8	1
33	37	38	47	46	91	92	101	100	1	5	1	1
34	38	39	48	47	92	93	102	101	1	5	2	1
35	39	40	49	48	93	94	103	102	1	5	3	1
36	40	41	50	49	94	95	104	103	1	5	4	1
37	41	42	51	50	95	96	105	104	1	5	5	1
38	42	43	52	51	96	97	106	105	1	5	6	1
39	43	44	53	52	97	98	107	106	1	5	7	1
40	44	45	54	53	98	99	108	107	1	5	8	1

card 6 & 7 material property data

material group no.	material type no.	mass density	Youngs modulus	Poisson ratio	tensile strength
1	1	.7400E-01	.1500E+05	.300	.3600E+03

cohesion	phi angle	yield criteion	tangent modulus	hardening rule
.0000E+00	.00	2	.5000E+03	.000

card 14 sinusoidal force information

node no.	x-(1),y-(2),z-(3)	ampli.	freq.
50	2	-.2500E+02	3.460
104	2	-.2500E+02	3.460

card 21 output information card

seq.	node#	d-(0),v-(1),a-(2), stress-(3)	x(1),y(2),z(3) xy(4),yz(5),xz(6)
1	40	0	2
2	41	0	2
3	42	0	2

nstep= 273000

Plastic element no [element no.Gauss point no] =

NONE

card 21 output information card

	seq.	node#	d-(0),v-(1),a-(2), stress-(3)	x(1),y(2),z(3) xy(4),yz(5),xz(6)
	1	40	0	2
	2	41	0	2
	3	42	0	2

time =	.50000E-01	-.198E-04	-.550E-04	-.198E-04
time =	.10000E+00	-.909E-04	-.234E-03	-.909E-04
time =	.15000E+00	-.207E-03	-.494E-03	-.207E-03
time =	.20000E+00	-.358E-03	-.800E-03	-.358E-03
time =	.25000E+00	-.531E-03	-.113E-02	-.531E-03
time =	.30000E+00	-.718E-03	-.146E-02	-.718E-03
time =	.35000E+00	-.908E-03	-.178E-02	-.908E-03
time =	.40000E+00	-.109E-02	-.206E-02	-.109E-02
time =	.45000E+00	-.126E-02	-.231E-02	-.126E-02
time =	.50000E+00	-.141E-02	-.251E-02	-.141E-02
time =	.55000E+00	-.152E-02	-.264E-02	-.152E-02
time =	.60000E+00	-.161E-02	-.271E-02	-.161E-02
time =	.65000E+00	-.165E-02	-.271E-02	-.165E-02
time =	.70000E+00	-.166E-02	-.264E-02	-.166E-02
time =	.75000E+00	-.162E-02	-.250E-02	-.162E-02
time =	.80000E+00	-.154E-02	-.229E-02	-.154E-02
time =	.85000E+00	-.142E-02	-.201E-02	-.142E-02
time =	.90000E+00	-.126E-02	-.169E-02	-.126E-02
time =	.95000E+00	-.107E-02	-.131E-02	-.107E-02
time =	.10000E+01	-.854E-03	-.906E-03	-.854E-03
time =	.10500E+01	-.613E-03	-.475E-03	-.613E-03
time =	.11000E+01	-.358E-03	-.331E-04	-.358E-03
time =	.11500E+01	-.937E-04	.407E-03	-.937E-04
time =	.12000E+01	.171E-03	.832E-03	.171E-03
time =	.12500E+01	.428E-03	.123E-02	.428E-03
time =	.13000E+01	.670E-03	.159E-02	.670E-03
time =	.13500E+01	.891E-03	.190E-02	.891E-03
time =	.14000E+01	.108E-02	.215E-02	.108E-02
time =	.14500E+01	.124E-02	.234E-02	.124E-02
time =	.15000E+01	.136E-02	.245E-02	.136E-02
time =	.15500E+01	.144E-02	.250E-02	.144E-02
time =	.16000E+01	.148E-02	.246E-02	.148E-02
time =	.16500E+01	.147E-02	.235E-02	.147E-02
time =	.17000E+01	.141E-02	.217E-02	.141E-02
time =	.17500E+01	.132E-02	.193E-02	.132E-02
time =	.18000E+01	.118E-02	.163E-02	.118E-02
time =	.18500E+01	.101E-02	.127E-02	.101E-02
time =	.19000E+01	.802E-03	.882E-03	.802E-03
time =	.19500E+01	.575E-03	.464E-03	.575E-03
time =	.20000E+01	.330E-03	.325E-04	.330E-03
time =	.20500E+01	.746E-04	-.401E-03	.746E-04
time =	.21000E+01	-.183E-03	-.823E-03	-.183E-03
time =	.21500E+01	-.436E-03	-.122E-02	-.436E-03
time =	.22000E+01	-.675E-03	-.158E-02	-.675E-03
time =	.22500E+01	-.895E-03	-.190E-02	-.895E-03
time =	.23000E+01	-.109E-02	-.215E-02	-.109E-02
time =	.23500E+01	-.125E-02	-.235E-02	-.125E-02
time =	.24000E+01	-.137E-02	-.247E-02	-.137E-02
time =	.24500E+01	-.146E-02	-.252E-02	-.146E-02
time =	.25000E+01	-.150E-02	-.250E-02	-.150E-02
time =	.25500E+01	-.149E-02	-.240E-02	-.149E-02
time =	.26000E+01	-.144E-02	-.223E-02	-.144E-02
time =	.26500E+01	-.135E-02	-.199E-02	-.135E-02

time =	.27000E+01	-.122E-02	-.169E-02	-.122E-02
time =	.27500E+01	-.105E-02	-.135E-02	-.105E-02
time =	.28000E+01	-.849E-03	-.959E-03	-.849E-03
time =	.28500E+01	-.623E-03	-.544E-03	-.623E-03
time =	.29000E+01	-.379E-03	-.112E-03	-.379E-03
time =	.29500E+01	-.124E-03	.323E-03	-.124E-03
time =	.30000E+01	.135E-03	.748E-03	.135E-03
time =	.30500E+01	.390E-03	.115E-02	.390E-03
time =	.31000E+01	.633E-03	.152E-02	.633E-03
time =	.31500E+01	.857E-03	.184E-02	.857E-03
time =	.32000E+01	.106E-02	.211E-02	.106E-02
time =	.32500E+01	.122E-02	.231E-02	.122E-02
time =	.33000E+01	.135E-02	.245E-02	.135E-02
time =	.33500E+01	.144E-02	.251E-02	.144E-02
time =	.34000E+01	.149E-02	.250E-02	.149E-02
time =	.34500E+01	.149E-02	.241E-02	.149E-02
time =	.35000E+01	.145E-02	.225E-02	.145E-02
time =	.35500E+01	.136E-02	.203E-02	.136E-02
time =	.36000E+01	.124E-02	.174E-02	.124E-02
time =	.36500E+01	.108E-02	.140E-02	.108E-02
time =	.37000E+01	.880E-03	.102E-02	.880E-03
time =	.37500E+01	.658E-03	.609E-03	.658E-03
time =	.38000E+01	.417E-03	.179E-03	.417E-03
time =	.38500E+01	.164E-03	-.256E-03	.164E-03
time =	.39000E+01	-.948E-04	-.684E-03	-.948E-04
time =	.39500E+01	-.350E-03	-.109E-02	-.350E-03
time =	.40000E+01	-.596E-03	-.147E-02	-.596E-03
time =	.40500E+01	-.823E-03	-.180E-02	-.823E-03
time =	.41000E+01	-.103E-02	-.208E-02	-.103E-02
time =	.41500E+01	-.120E-02	-.229E-02	-.120E-02
time =	.42000E+01	-.134E-02	-.244E-02	-.134E-02
time =	.42500E+01	-.143E-02	-.251E-02	-.143E-02
time =	.43000E+01	-.149E-02	-.251E-02	-.149E-02
time =	.43500E+01	-.150E-02	-.244E-02	-.150E-02
time =	.44000E+01	-.146E-02	-.229E-02	-.146E-02
time =	.44500E+01	-.138E-02	-.207E-02	-.138E-02
time =	.45000E+01	-.126E-02	-.179E-02	-.126E-02
time =	.45500E+01	-.110E-02	-.146E-02	-.110E-02
time =	.46000E+01	-.914E-03	-.109E-02	-.914E-03
time =	.46500E+01	-.696E-03	-.677E-03	-.696E-03
time =	.47000E+01	-.458E-03	-.249E-03	-.458E-03
time =	.47500E+01	-.205E-03	.186E-03	-.205E-03
time =	.48000E+01	.534E-04	.616E-03	.534E-04
time =	.48500E+01	.310E-03	.103E-02	.310E-03
time =	.49000E+01	.558E-03	.141E-02	.558E-03
time =	.49500E+01	.789E-03	.175E-02	.789E-03
time =	.50000E+01	.996E-03	.203E-02	.996E-03
time =	.50500E+01	.117E-02	.226E-02	.117E-02
time =	.51000E+01	.132E-02	.242E-02	.132E-02
time =	.51500E+01	.142E-02	.250E-02	.142E-02
time =	.52000E+01	.148E-02	.251E-02	.148E-02
time =	.52500E+01	.150E-02	.245E-02	.150E-02
time =	.53000E+01	.147E-02	.231E-02	.147E-02
time =	.53500E+01	.140E-02	.211E-02	.140E-02
time =	.54000E+01	.128E-02	.184E-02	.128E-02
time =	.54500E+01	.113E-02	.151E-02	.113E-02
time =	.55000E+01	.945E-03	.115E-02	.945E-03
time =	.55500E+01	.732E-03	.743E-03	.732E-03
time =	.56000E+01	.496E-03	.317E-03	.496E-03
time =	.56500E+01	.246E-03	-.118E-03	.246E-03

time =	.57000E+01	-.122E-04	-.549E-03	-.122E-04
time =	.57500E+01	-.270E-03	-.964E-03	-.270E-03
time =	.58000E+01	-.519E-03	-.135E-02	-.519E-03
time =	.58500E+01	-.753E-03	-.170E-02	-.753E-03
time =	.59000E+01	-.964E-03	-.199E-02	-.964E-03
time =	.59500E+01	-.115E-02	-.223E-02	-.115E-02
time =	.60000E+01	-.130E-02	-.240E-02	-.130E-02
time =	.60500E+01	-.141E-02	-.250E-02	-.141E-02
time =	.61000E+01	-.147E-02	-.252E-02	-.147E-02
time =	.61500E+01	-.150E-02	-.247E-02	-.150E-02
time =	.62000E+01	-.148E-02	-.234E-02	-.148E-02
time =	.62500E+01	-.141E-02	-.215E-02	-.141E-02
time =	.63000E+01	-.130E-02	-.189E-02	-.130E-02
time =	.63500E+01	-.116E-02	-.157E-02	-.116E-02
time =	.64000E+01	-.978E-03	-.121E-02	-.978E-03
time =	.64500E+01	-.768E-03	-.810E-03	-.768E-03
time =	.65000E+01	-.536E-03	-.387E-03	-.536E-03
time =	.65500E+01	-.287E-03	.470E-04	-.287E-03
time =	.66000E+01	-.293E-04	.480E-03	-.293E-04
time =	.66500E+01	.229E-03	.898E-03	.229E-03
time =	.67000E+01	.480E-03	.129E-02	.480E-03
time =	.67500E+01	.717E-03	.164E-02	.717E-03
time =	.68000E+01	.933E-03	.195E-02	.933E-03
time =	.68500E+01	.112E-02	.219E-02	.112E-02
time =	.69000E+01	.127E-02	.237E-02	.127E-02
time =	.69500E+01	.139E-02	.248E-02	.139E-02
time =	.70000E+01	.147E-02	.252E-02	.147E-02
time =	.70500E+01	.150E-02	.248E-02	.150E-02
time =	.71000E+01	.148E-02	.236E-02	.148E-02
time =	.71500E+01	.142E-02	.218E-02	.142E-02
time =	.72000E+01	.132E-02	.193E-02	.132E-02
time =	.72500E+01	.118E-02	.162E-02	.118E-02
time =	.73000E+01	.101E-02	.127E-02	.101E-02
time =	.73500E+01	.802E-03	.874E-03	.802E-03
time =	.74000E+01	.573E-03	.455E-03	.573E-03
time =	.74500E+01	.327E-03	.214E-04	.327E-03
time =	.75000E+01	.703E-04	-.413E-03	.703E-04
time =	.75500E+01	-.188E-03	-.834E-03	-.188E-03
time =	.76000E+01	-.441E-03	-.123E-02	-.441E-03
time =	.76500E+01	-.680E-03	-.159E-02	-.680E-03
time =	.77000E+01	-.900E-03	-.190E-02	-.900E-03
time =	.77500E+01	-.109E-02	-.216E-02	-.109E-02
time =	.78000E+01	-.125E-02	-.235E-02	-.125E-02
time =	.78500E+01	-.137E-02	-.247E-02	-.137E-02
time =	.79000E+01	-.146E-02	-.252E-02	-.146E-02
time =	.79500E+01	-.149E-02	-.249E-02	-.149E-02
time =	.80000E+01	-.149E-02	-.239E-02	-.149E-02
time =	.80500E+01	-.144E-02	-.222E-02	-.144E-02
time =	.81000E+01	-.134E-02	-.198E-02	-.134E-02
time =	.81500E+01	-.121E-02	-.168E-02	-.121E-02
time =	.82000E+01	-.104E-02	-.133E-02	-.104E-02
time =	.82500E+01	-.838E-03	-.941E-03	-.838E-03
time =	.83000E+01	-.612E-03	-.524E-03	-.612E-03
time =	.83500E+01	-.367E-03	-.920E-04	-.367E-03
time =	.84000E+01	-.112E-03	.343E-03	-.112E-03
time =	.84500E+01	.147E-03	.767E-03	.147E-03
time =	.85000E+01	.401E-03	.117E-02	.401E-03
time =	.85500E+01	.644E-03	.153E-02	.644E-03
time =	.86000E+01	.867E-03	.186E-02	.867E-03
time =	.86500E+01	.106E-02	.212E-02	.106E-02

time =	.87000E+01	.123E-02	.232E-02	.123E-02
time =	.87500E+01	.136E-02	.245E-02	.136E-02
time =	.88000E+01	.145E-02	.251E-02	.145E-02
time =	.88500E+01	.149E-02	.250E-02	.149E-02
time =	.89000E+01	.149E-02	.241E-02	.149E-02
time =	.89500E+01	.145E-02	.225E-02	.145E-02
time =	.90000E+01	.136E-02	.202E-02	.136E-02
time =	.90500E+01	.123E-02	.173E-02	.123E-02
time =	.91000E+01	.107E-02	.139E-02	.107E-02
time =	.91500E+01	.871E-03	.100E-02	.871E-03
time =	.92000E+01	.648E-03	.591E-03	.648E-03
time =	.92500E+01	.407E-03	.160E-03	.407E-03
time =	.93000E+01	.153E-03	-.275E-03	.153E-03
time =	.93500E+01	-.106E-03	-.702E-03	-.106E-03
time =	.94000E+01	-.361E-03	-.111E-02	-.361E-03
time =	.94500E+01	-.606E-03	-.148E-02	-.606E-03
time =	.95000E+01	-.832E-03	-.181E-02	-.832E-03
time =	.95500E+01	-.103E-02	-.209E-02	-.103E-02
time =	.96000E+01	-.121E-02	-.230E-02	-.121E-02
time =	.96500E+01	-.134E-02	-.244E-02	-.134E-02
time =	.97000E+01	-.144E-02	-.251E-02	-.144E-02
time =	.97500E+01	-.149E-02	-.251E-02	-.149E-02
time =	.98000E+01	-.150E-02	-.243E-02	-.150E-02
time =	.98500E+01	-.146E-02	-.228E-02	-.146E-02
time =	.99000E+01	-.138E-02	-.206E-02	-.138E-02
time =	.99500E+01	-.126E-02	-.178E-02	-.126E-02
time =	.10000E+02	-.110E-02	-.145E-02	-.110E-02
time =	.10050E+02	-.905E-03	-.107E-02	-.905E-03
time =	.10100E+02	-.686E-03	-.659E-03	-.686E-03
time =	.10150E+02	-.447E-03	-.231E-03	-.447E-03
time =	.10200E+02	-.194E-03	.205E-03	-.194E-03
time =	.10250E+02	.646E-04	.634E-03	.646E-04
time =	.10300E+02	.321E-03	.104E-02	.321E-03
time =	.10350E+02	.568E-03	.142E-02	.568E-03
time =	.10400E+02	.798E-03	.176E-02	.798E-03
time =	.10450E+02	.100E-02	.204E-02	.100E-02
time =	.10500E+02	.118E-02	.227E-02	.118E-02
time =	.10550E+02	.132E-02	.242E-02	.132E-02
time =	.10600E+02	.142E-02	.250E-02	.142E-02
time =	.10650E+02	.148E-02	.251E-02	.148E-02
time =	.10700E+02	.150E-02	.244E-02	.150E-02
time =	.10750E+02	.147E-02	.230E-02	.147E-02
time =	.10800E+02	.139E-02	.210E-02	.139E-02
time =	.10850E+02	.128E-02	.183E-02	.128E-02
time =	.10900E+02	.112E-02	.150E-02	.112E-02
time =	.10950E+02	.937E-03	.113E-02	.937E-03
time =	.11000E+02	.722E-03	.725E-03	.722E-03
time =	.11050E+02	.485E-03	.299E-03	.485E-03
time =	.11100E+02	.235E-03	-.136E-03	.235E-03
time =	.11150E+02	-.233E-04	-.567E-03	-.233E-04
time =	.11200E+02	-.281E-03	-.982E-03	-.281E-03
time =	.11250E+02	-.529E-03	-.137E-02	-.529E-03
time =	.11300E+02	-.762E-03	-.171E-02	-.762E-03
time =	.11350E+02	-.973E-03	-.200E-02	-.973E-03
time =	.11400E+02	-.115E-02	-.224E-02	-.115E-02
time =	.11450E+02	-.130E-02	-.240E-02	-.130E-02
time =	.11500E+02	-.141E-02	-.250E-02	-.141E-02
time =	.11550E+02	-.148E-02	-.252E-02	-.148E-02
time =	.11600E+02	-.150E-02	-.246E-02	-.150E-02
time =	.11650E+02	-.147E-02	-.234E-02	-.147E-02

time =	.11700E+02	-.141E-02	-.214E-02	-.141E-02
time =	.11750E+02	-.130E-02	-.188E-02	-.130E-02
time =	.11800E+02	-.115E-02	-.156E-02	-.115E-02
time =	.11850E+02	-.970E-03	-.119E-02	-.970E-03
time =	.11900E+02	-.759E-03	-.792E-03	-.759E-03
time =	.11950E+02	-.525E-03	-.369E-03	-.525E-03
time =	.12000E+02	-.276E-03	.658E-04	-.276E-03
time =	.12050E+02	-.181E-04	.498E-03	-.181E-04
time =	.12100E+02	.240E-03	.916E-03	.240E-03
time =	.12150E+02	.491E-03	.131E-02	.491E-03
time =	.12200E+02	.727E-03	.166E-02	.727E-03
time =	.12250E+02	.942E-03	.196E-02	.942E-03
time =	.12300E+02	.113E-02	.220E-02	.113E-02
time =	.12350E+02	.128E-02	.238E-02	.128E-02
time =	.12400E+02	.140E-02	.248E-02	.140E-02
time =	.12450E+02	.147E-02	.252E-02	.147E-02
time =	.12500E+02	.150E-02	.247E-02	.150E-02
time =	.12550E+02	.148E-02	.236E-02	.148E-02
time =	.12600E+02	.142E-02	.217E-02	.142E-02
time =	.12650E+02	.132E-02	.192E-02	.132E-02
time =	.12700E+02	.118E-02	.161E-02	.118E-02
time =	.12750E+02	.100E-02	.125E-02	.100E-02
time =	.12800E+02	.793E-03	.857E-03	.793E-03
time =	.12850E+02	.563E-03	.436E-03	.563E-03
time =	.12900E+02	.316E-03	.261E-05	.316E-03
time =	.12950E+02	.592E-04	-.431E-03	.592E-04
time =	.13000E+02	-.199E-03	-.852E-03	-.199E-03
time =	.13050E+02	-.451E-03	-.125E-02	-.451E-03
time =	.13100E+02	-.690E-03	-.161E-02	-.690E-03
time =	.13150E+02	-.909E-03	-.192E-02	-.909E-03
time =	.13200E+02	-.110E-02	-.217E-02	-.110E-02
time =	.13250E+02	-.126E-02	-.236E-02	-.126E-02
time =	.13300E+02	-.138E-02	-.248E-02	-.138E-02
time =	.13350E+02	-.146E-02	-.252E-02	-.146E-02
time =	.13400E+02	-.150E-02	-.249E-02	-.150E-02
time =	.13450E+02	-.149E-02	-.238E-02	-.149E-02
time =	.13500E+02	-.143E-02	-.221E-02	-.143E-02
time =	.13550E+02	-.134E-02	-.197E-02	-.134E-02
time =	.13600E+02	-.120E-02	-.166E-02	-.120E-02
time =	.13650E+02	-.103E-02	-.131E-02	-.103E-02
time =	.13700E+02	-.829E-03	-.923E-03	-.829E-03
time =	.13750E+02	-.602E-03	-.506E-03	-.602E-03
time =	.13800E+02	-.357E-03	-.732E-04	-.357E-03
time =	.13850E+02	-.101E-03	.361E-03	-.101E-03
time =	.13900E+02	.158E-03	.785E-03	.158E-03
time =	.13950E+02	.412E-03	.119E-02	.412E-03
time =	.14000E+02	.654E-03	.155E-02	.654E-03
time =	.14050E+02	.876E-03	.187E-02	.876E-03
time =	.14100E+02	.107E-02	.213E-02	.107E-02
time =	.14150E+02	.124E-02	.233E-02	.124E-02
time =	.14200E+02	.136E-02	.246E-02	.136E-02
time =	.14250E+02	.145E-02	.251E-02	.145E-02
time =	.14300E+02	.149E-02	.250E-02	.149E-02
time =	.14350E+02	.149E-02	.240E-02	.149E-02
time =	.14400E+02	.144E-02	.224E-02	.144E-02
time =	.14450E+02	.136E-02	.200E-02	.136E-02
time =	.14500E+02	.123E-02	.171E-02	.123E-02
time =	.14550E+02	.106E-02	.137E-02	.106E-02
time =	.14600E+02	.862E-03	.986E-03	.862E-03
time =	.14650E+02	.638E-03	.572E-03	.638E-03

time =	.14700E+02	.396E-03	.142E-03	.396E-03
time =	.14750E+02	.142E-03	-.294E-03	.142E-03
time =	.14800E+02	-.117E-03	-.720E-03	-.117E-03
time =	.14850E+02	-.372E-03	-.113E-02	-.372E-03
time =	.14900E+02	-.616E-03	-.150E-02	-.616E-03
time =	.14950E+02	-.842E-03	-.182E-02	-.842E-03
time =	.15000E+02	-.104E-02	-.210E-02	-.104E-02
time =	.15050E+02	-.121E-02	-.231E-02	-.121E-02
time =	.15100E+02	-.134E-02	-.245E-02	-.134E-02
time =	.15150E+02	-.144E-02	-.252E-02	-.144E-02
time =	.15200E+02	-.149E-02	-.251E-02	-.149E-02
time =	.15250E+02	-.149E-02	-.243E-02	-.149E-02
time =	.15300E+02	-.146E-02	-.227E-02	-.146E-02
time =	.15350E+02	-.137E-02	-.205E-02	-.137E-02
time =	.15400E+02	-.125E-02	-.177E-02	-.125E-02
time =	.15450E+02	-.109E-02	-.143E-02	-.109E-02
time =	.15500E+02	-.896E-03	-.105E-02	-.896E-03
time =	.15550E+02	-.676E-03	-.641E-03	-.676E-03
time =	.15600E+02	-.436E-03	-.212E-03	-.436E-03
time =	.15650E+02	-.183E-03	.223E-03	-.183E-03
time =	.15700E+02	.757E-04	.652E-03	.757E-04
time =	.15750E+02	.332E-03	.106E-02	.332E-03
time =	.15800E+02	.579E-03	.144E-02	.579E-03
time =	.15850E+02	.808E-03	.177E-02	.808E-03
time =	.15900E+02	.101E-02	.205E-02	.101E-02
time =	.15950E+02	.119E-02	.227E-02	.119E-02
time =	.16000E+02	.133E-02	.243E-02	.133E-02
time =	.16050E+02	.143E-02	.251E-02	.143E-02
time =	.16100E+02	.148E-02	.251E-02	.148E-02
time =	.16150E+02	.150E-02	.244E-02	.150E-02
time =	.16200E+02	.146E-02	.230E-02	.146E-02
time =	.16250E+02	.139E-02	.209E-02	.139E-02
time =	.16300E+02	.127E-02	.181E-02	.127E-02
time =	.16350E+02	.112E-02	.148E-02	.112E-02
time =	.16400E+02	.928E-03	.111E-02	.928E-03
time =	.16450E+02	.712E-03	.707E-03	.712E-03
time =	.16500E+02	.475E-03	.280E-03	.475E-03
time =	.16550E+02	.224E-03	-.155E-03	.224E-03
time =	.16600E+02	-.345E-04	-.586E-03	-.345E-04
time =	.16650E+02	-.291E-03	-.999E-03	-.291E-03
time =	.16700E+02	-.540E-03	-.138E-02	-.540E-03
time =	.16750E+02	-.772E-03	-.172E-02	-.772E-03
time =	.16800E+02	-.981E-03	-.202E-02	-.981E-03
time =	.16850E+02	-.116E-02	-.225E-02	-.116E-02
time =	.16900E+02	-.131E-02	-.241E-02	-.131E-02
time =	.16950E+02	-.141E-02	-.250E-02	-.141E-02
time =	.17000E+02	-.148E-02	-.252E-02	-.148E-02
time =	.17050E+02	-.150E-02	-.246E-02	-.150E-02
time =	.17100E+02	-.147E-02	-.233E-02	-.147E-02
time =	.17150E+02	-.140E-02	-.213E-02	-.140E-02
time =	.17200E+02	-.129E-02	-.186E-02	-.129E-02
time =	.17250E+02	-.114E-02	-.154E-02	-.114E-02
time =	.17300E+02	-.961E-03	-.118E-02	-.961E-03
time =	.17350E+02	-.749E-03	-.775E-03	-.749E-03
time =	.17400E+02	-.515E-03	-.350E-03	-.515E-03
time =	.17450E+02	-.265E-03	.845E-04	-.265E-03
time =	.17500E+02	-.695E-05	.517E-03	-.695E-05
time =	.17550E+02	.251E-03	.933E-03	.251E-03
time =	.17600E+02	.502E-03	.132E-02	.502E-03
time =	.17650E+02	.737E-03	.167E-02	.737E-03

time =	.17700E+02	.950E-03	.197E-02	.950E-03
time =	.17750E+02	.114E-02	.221E-02	.114E-02
time =	.17800E+02	.129E-02	.238E-02	.129E-02
time =	.17850E+02	.140E-02	.249E-02	.140E-02
time =	.17900E+02	.147E-02	.252E-02	.147E-02
time =	.17950E+02	.150E-02	.247E-02	.150E-02
time =	.18000E+02	.148E-02	.235E-02	.148E-02
time =	.18050E+02	.142E-02	.216E-02	.142E-02
time =	.18100E+02	.131E-02	.191E-02	.131E-02
time =	.18150E+02	.117E-02	.159E-02	.117E-02
time =	.18200E+02	.991E-03	.124E-02	.991E-03
time =	.18250E+02	.784E-03	.839E-03	.784E-03
time =	.18300E+02	.552E-03	.418E-03	.552E-03
time =	.18350E+02	.305E-03	-.161E-04	.305E-03
time =	.18400E+02	.481E-04	-.450E-03	.481E-04
time =	.18450E+02	-.210E-03	-.870E-03	-.210E-03
time =	.18500E+02	-.462E-03	-.126E-02	-.462E-03
time =	.18550E+02	-.700E-03	-.162E-02	-.700E-03
time =	.18600E+02	-.917E-03	-.193E-02	-.917E-03
time =	.18650E+02	-.111E-02	-.218E-02	-.111E-02
time =	.18700E+02	-.126E-02	-.237E-02	-.126E-02
time =	.18750E+02	-.138E-02	-.248E-02	-.138E-02
time =	.18800E+02	-.146E-02	-.252E-02	-.146E-02
time =	.18850E+02	-.150E-02	-.249E-02	-.150E-02
time =	.18900E+02	-.149E-02	-.238E-02	-.149E-02
time =	.18950E+02	-.143E-02	-.220E-02	-.143E-02
time =	.19000E+02	-.133E-02	-.195E-02	-.133E-02
time =	.19050E+02	-.120E-02	-.165E-02	-.120E-02
time =	.19100E+02	-.102E-02	-.130E-02	-.102E-02
time =	.19150E+02	-.820E-03	-.906E-03	-.820E-03
time =	.19200E+02	-.591E-03	-.487E-03	-.591E-03
time =	.19250E+02	-.346E-03	-.545E-04	-.346E-03
time =	.19300E+02	-.896E-04	.380E-03	-.896E-04
time =	.19350E+02	.169E-03	.803E-03	.169E-03
time =	.19400E+02	.423E-03	.120E-02	.423E-03
time =	.19450E+02	.664E-03	.156E-02	.664E-03
time =	.19500E+02	.885E-03	.188E-02	.885E-03
time =	.19550E+02	.108E-02	.214E-02	.108E-02
time =	.19600E+02	.124E-02	.234E-02	.124E-02
time =	.19650E+02	.137E-02	.246E-02	.137E-02
time =	.19700E+02	.145E-02	.252E-02	.145E-02
time =	.19750E+02	.149E-02	.249E-02	.149E-02
time =	.19800E+02	.149E-02	.240E-02	.149E-02
time =	.19850E+02	.144E-02	.223E-02	.144E-02
time =	.19900E+02	.135E-02	.199E-02	.135E-02
time =	.19950E+02	.122E-02	.170E-02	.122E-02
time =	.20000E+02	.105E-02	.135E-02	.105E-02
time =	.20050E+02	.853E-03	.969E-03	.853E-03
time =	.20100E+02	.628E-03	.554E-03	.628E-03
time =	.20150E+02	.385E-03	.123E-03	.385E-03
time =	.20200E+02	.130E-03	-.312E-03	.130E-03
time =	.20250E+02	-.128E-03	-.738E-03	-.128E-03
time =	.20300E+02	-.383E-03	-.114E-02	-.383E-03
time =	.20350E+02	-.626E-03	-.151E-02	-.626E-03
time =	.20400E+02	-.851E-03	-.184E-02	-.851E-03
time =	.20450E+02	-.105E-02	-.211E-02	-.105E-02
time =	.20500E+02	-.122E-02	-.231E-02	-.122E-02
time =	.20550E+02	-.135E-02	-.245E-02	-.135E-02
time =	.20600E+02	-.144E-02	-.252E-02	-.144E-02
time =	.20650E+02	-.149E-02	-.251E-02	-.149E-02

time =	.20700E+02	-.149E-02	-.242E-02	-.149E-02
time =	.20750E+02	-.145E-02	-.226E-02	-.145E-02
time =	.20800E+02	-.137E-02	-.204E-02	-.137E-02
time =	.20850E+02	-.124E-02	-.175E-02	-.124E-02
time =	.20900E+02	-.108E-02	-.141E-02	-.108E-02
time =	.20950E+02	-.887E-03	-.103E-02	-.887E-03
time =	.21000E+02	-.666E-03	-.623E-03	-.666E-03
time =	.21050E+02	-.426E-03	-.193E-03	-.426E-03
time =	.21100E+02	-.172E-03	.242E-03	-.172E-03
time =	.21150E+02	.868E-04	.670E-03	.868E-04
time =	.21200E+02	.343E-03	.108E-02	.343E-03
time =	.21250E+02	.589E-03	.145E-02	.589E-03
time =	.21300E+02	.817E-03	.179E-02	.817E-03
time =	.21350E+02	.102E-02	.206E-02	.102E-02
time =	.21400E+02	.119E-02	.228E-02	.119E-02
time =	.21450E+02	.133E-02	.243E-02	.133E-02
time =	.21500E+02	.143E-02	.251E-02	.143E-02
time =	.21550E+02	.148E-02	.251E-02	.148E-02
time =	.21600E+02	.150E-02	.244E-02	.150E-02
time =	.21650E+02	.146E-02	.229E-02	.146E-02
time =	.21700E+02	.138E-02	.208E-02	.138E-02
time =	.21750E+02	.127E-02	.180E-02	.127E-02
time =	.21800E+02	.111E-02	.147E-02	.111E-02
time =	.21850E+02	.919E-03	.110E-02	.919E-03
time =	.21900E+02	.702E-03	.689E-03	.702E-03
time =	.21950E+02	.464E-03	.261E-03	.464E-03
time =	.22000E+02	.213E-03	-.174E-03	.213E-03
time =	.22050E+02	-.456E-04	-.604E-03	-.456E-04
time =	.22100E+02	-.302E-03	-.102E-02	-.302E-03
time =	.22150E+02	-.550E-03	-.140E-02	-.550E-03
time =	.22200E+02	-.782E-03	-.174E-02	-.782E-03
time =	.22250E+02	-.990E-03	-.203E-02	-.990E-03
time =	.22300E+02	-.117E-02	-.225E-02	-.117E-02
time =	.22350E+02	-.131E-02	-.242E-02	-.131E-02
time =	.22400E+02	-.142E-02	-.250E-02	-.142E-02
time =	.22450E+02	-.148E-02	-.252E-02	-.148E-02
time =	.22500E+02	-.150E-02	-.246E-02	-.150E-02
time =	.22550E+02	-.147E-02	-.232E-02	-.147E-02
time =	.22600E+02	-.140E-02	-.212E-02	-.140E-02
time =	.22650E+02	-.129E-02	-.185E-02	-.129E-02
time =	.22700E+02	-.114E-02	-.153E-02	-.114E-02
time =	.22750E+02	-.953E-03	-.116E-02	-.953E-03
time =	.22800E+02	-.739E-03	-.757E-03	-.739E-03
time =	.22850E+02	-.504E-03	-.332E-03	-.504E-03
time =	.22900E+02	-.254E-03	.103E-03	-.254E-03
time =	.22950E+02	.420E-05	.535E-03	.420E-05
time =	.23000E+02	.262E-03	.951E-03	.262E-03
time =	.23050E+02	.512E-03	.134E-02	.512E-03
time =	.23100E+02	.747E-03	.168E-02	.747E-03
time =	.23150E+02	.959E-03	.198E-02	.959E-03
time =	.23200E+02	.114E-02	.222E-02	.114E-02
time =	.23250E+02	.129E-02	.239E-02	.129E-02
time =	.23300E+02	.140E-02	.249E-02	.140E-02
time =	.23350E+02	.147E-02	.252E-02	.147E-02
time =	.23400E+02	.150E-02	.247E-02	.150E-02
time =	.23450E+02	.148E-02	.234E-02	.148E-02
time =	.23500E+02	.141E-02	.215E-02	.141E-02
time =	.23550E+02	.131E-02	.189E-02	.131E-02
time =	.23600E+02	.116E-02	.158E-02	.116E-02
time =	.23650E+02	.983E-03	.122E-02	.983E-03

time =	.23700E+02	.774E-03	.821E-03	.774E-03
time =	.23750E+02	.542E-03	.399E-03	.542E-03
time =	.23800E+02	.294E-03	-.349E-04	.294E-03
time =	.23850E+02	.369E-04	-.468E-03	.369E-04
time =	.23900E+02	-.221E-03	-.887E-03	-.221E-03
time =	.23950E+02	-.473E-03	-.128E-02	-.473E-03
time =	.24000E+02	-.710E-03	-.164E-02	-.710E-03
time =	.24050E+02	-.926E-03	-.194E-02	-.926E-03
time =	.24100E+02	-.111E-02	-.219E-02	-.111E-02
time =	.24150E+02	-.127E-02	-.237E-02	-.127E-02
time =	.24200E+02	-.139E-02	-.248E-02	-.139E-02
time =	.24250E+02	-.146E-02	-.252E-02	-.146E-02
time =	.24300E+02	-.150E-02	-.248E-02	-.150E-02
time =	.24350E+02	-.148E-02	-.237E-02	-.148E-02
time =	.24400E+02	-.143E-02	-.219E-02	-.143E-02
time =	.24450E+02	-.133E-02	-.194E-02	-.133E-02
time =	.24500E+02	-.119E-02	-.164E-02	-.119E-02
time =	.24550E+02	-.101E-02	-.128E-02	-.101E-02
time =	.24600E+02	-.810E-03	-.888E-03	-.810E-03
time =	.24650E+02	-.581E-03	-.469E-03	-.581E-03
time =	.24700E+02	-.335E-03	-.357E-04	-.335E-03
time =	.24750E+02	-.784E-04	.398E-03	-.784E-04
time =	.24800E+02	.180E-03	.821E-03	.180E-03
time =	.24850E+02	.434E-03	.122E-02	.434E-03
time =	.24900E+02	.674E-03	.158E-02	.674E-03
time =	.24950E+02	.894E-03	.189E-02	.894E-03
time =	.25000E+02	.109E-02	.215E-02	.109E-02
time =	.25050E+02	.125E-02	.234E-02	.125E-02
time =	.25100E+02	.137E-02	.247E-02	.137E-02
time =	.25150E+02	.145E-02	.252E-02	.145E-02
time =	.25200E+02	.149E-02	.249E-02	.149E-02
time =	.25250E+02	.149E-02	.239E-02	.149E-02
time =	.25300E+02	.144E-02	.222E-02	.144E-02
time =	.25350E+02	.135E-02	.198E-02	.135E-02
time =	.25400E+02	.121E-02	.169E-02	.121E-02
time =	.25450E+02	.104E-02	.134E-02	.104E-02
time =	.25500E+02	.844E-03	.951E-03	.844E-03
time =	.25550E+02	.618E-03	.536E-03	.618E-03
time =	.25600E+02	.374E-03	.104E-03	.374E-03
time =	.25650E+02	.119E-03	-.331E-03	.119E-03
time =	.25700E+02	-.139E-03	-.756E-03	-.139E-03
time =	.25750E+02	-.394E-03	-.116E-02	-.394E-03
time =	.25800E+02	-.636E-03	-.153E-02	-.636E-03
time =	.25850E+02	-.860E-03	-.185E-02	-.860E-03
time =	.25900E+02	-.106E-02	-.212E-02	-.106E-02
time =	.25950E+02	-.122E-02	-.232E-02	-.122E-02
time =	.26000E+02	-.135E-02	-.246E-02	-.135E-02
time =	.26050E+02	-.144E-02	-.252E-02	-.144E-02
time =	.26100E+02	-.149E-02	-.250E-02	-.149E-02
time =	.26150E+02	-.149E-02	-.242E-02	-.149E-02
time =	.26200E+02	-.145E-02	-.226E-02	-.145E-02
time =	.26250E+02	-.136E-02	-.203E-02	-.136E-02
time =	.26300E+02	-.124E-02	-.174E-02	-.124E-02
time =	.26350E+02	-.107E-02	-.140E-02	-.107E-02
time =	.26400E+02	-.878E-03	-.102E-02	-.878E-03
time =	.26450E+02	-.656E-03	-.605E-03	-.656E-03
time =	.26500E+02	-.415E-03	-.175E-03	-.415E-03
time =	.26550E+02	-.161E-03	.261E-03	-.161E-03
time =	.26600E+02	.980E-04	.688E-03	.980E-04
time =	.26650E+02	.354E-03	.109E-02	.354E-03

```
time =   .26700E+02   .599E-03   .147E-02   .599E-03
```

Problem 5.

A rectangular plate (or half space) of elastic-plastic material subjected to pulse loadings (Mises criterion and associated flow rule)

(Loading does reach plastic yielding, solutions are essentially elastic)

- **Problem description and loading functions**
- **Deflection and stress plots**
- **Input file for Soild3D**
- **Sample output of Soild3D**

Problem description and loading functions

3D Straight Edge Boundary with impulsive force (J2 material)

Input:

1. Geometry and finite element mesh are the same as the sinusoidal case.

2. Material Properties are shown as the followings:

E	=	15000 psi
υ	=	0.3
ρ	=	7.4e-2 lb-sec^2/in^4
Ft	=	360 psi (tensile strength)
Et	=	500 psi

Assumed kinematic work-hardening J2 material.

3. Impulsive load function is are shown in the next following page.

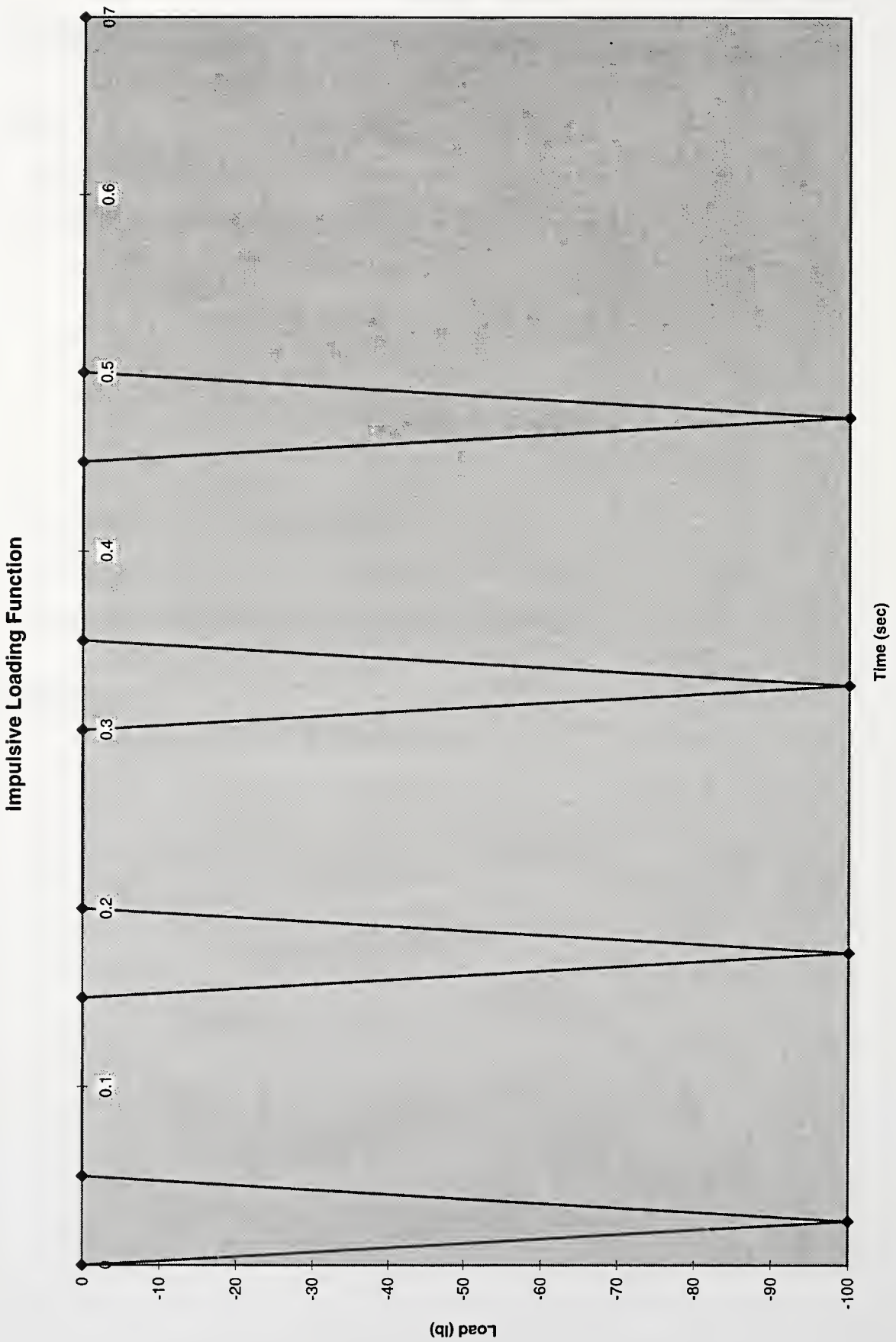
4. The input data file and output result are shown after load function.

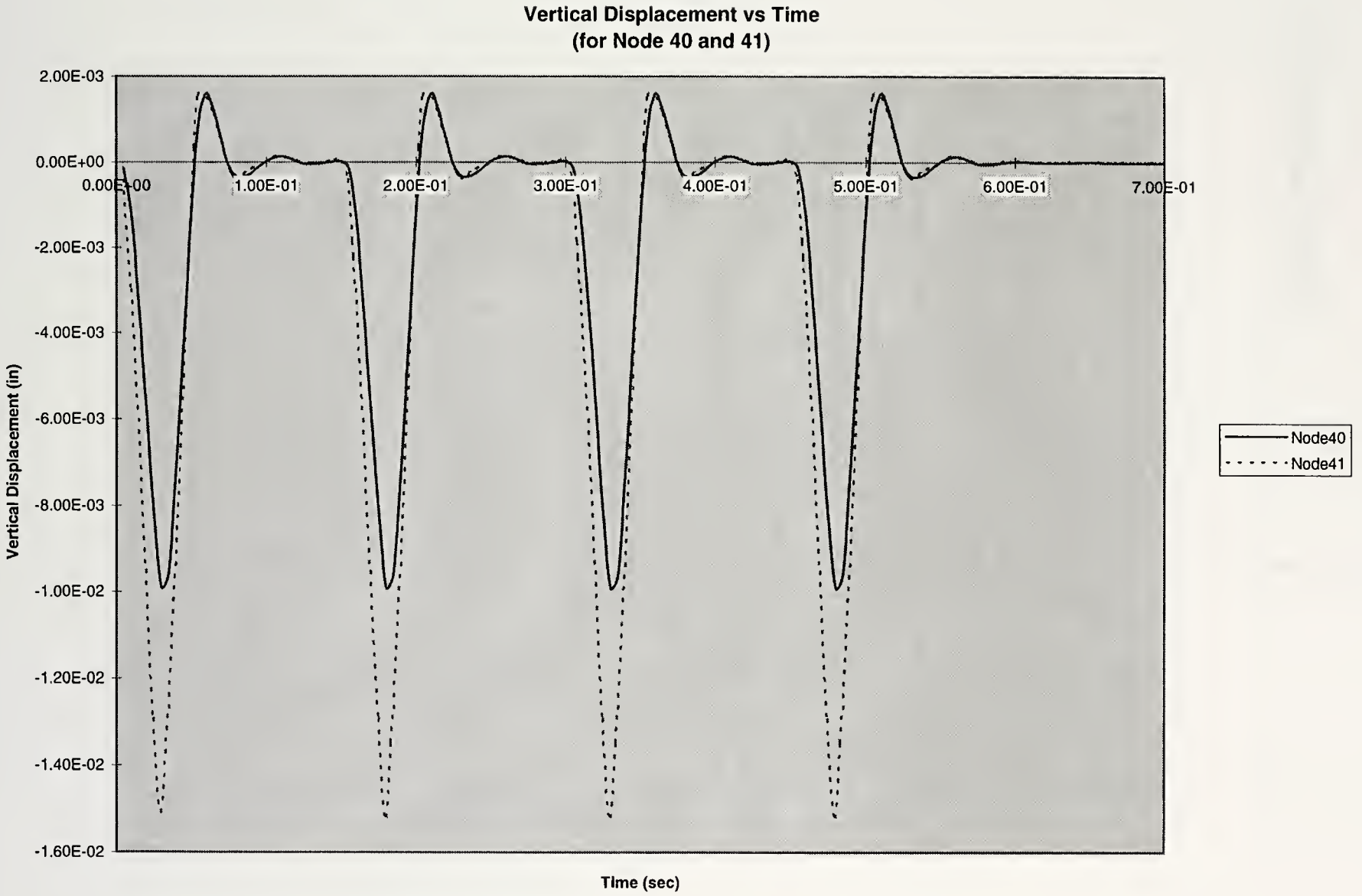
Problem results

The vertical settlements are plotted against time.

\

Deflection and stress plots


Impulsive Loading Function
Load (lb)
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
0.1
0.2
0.3
0.4
0.5
0.6
0.7
Time (sec)


Vertical Displacement vs Time
(for Node 40 and 41)
2.00E-03
0.00E+00
0.00E+00
1.00E-01
2.00E-01
3.00E-01
4.00E-01
5.00E-01
6.00E-01
7.00E-01
-2.00E-03
-4.00E-03
-6.00E-03
-8.00E-03
-1.00E-02
-1.20E-02
-1.40E-02
-1.60E-02
Vertical Displacement (in)
Time (sec)
Node40
Node41

Input file for Solid3D

```
Impulsive Loading on straight edge boundary(J2 Material)
50 108 40 1 3 3 7000  1.e-4  1.e+2  1.e-10  0.
0 1 0 1
1     0.    0.    1.    1   1   1
2     1.    0.    1.    1   1   1
3     2.    0.    1.    1   1   1
4     3.    0.    1.    1   1   1
5     4.    0.    1.    1   1   1
6     5.    0.    1.    1   1   1
7     6.    0.    1.    1   1   1
8     7.    0.    1.    1   1   1
9     8.    0.    1.    1   1   1
10    0.    1.    1.    1   0   0
11    1.    1.    1.    0   0   0
12    2.    1.    1.    0   0   0
13    3.    1.    1.    0   0   0
14    4.    1.    1.    0   0   0
15    5.    1.    1.    0   0   0
16    6.    1.    1.    0   0   0
17    7.    1.    1.    0   0   0
18    8.    1.    1.    1   0   0
19    0.    2.    1.    1   0   0
20    1.    2.    1.    0   0   0
21    2.    2.    1.    0   0   0
22    3.    2.    1.    0   0   0
23    4.    2.    1.    0   0   0
24    5.    2.    1.    0   0   0
25    6.    2.    1.    0   0   0
26    7.    2.    1.    0   0   0
27    8.    2.    1.    1   0   0
28    0.    3.    1.    1   0   0
29    1.    3.    1.    0   0   0
30    2.    3.    1.    0   0   0
31    3.    3.    1.    0   0   0
32    4.    3.    1.    0   0   0
33    5.    3.    1.    0   0   0
34    6.    3.    1.    0   0   0
35    7.    3.    1.    0   0   0
36    8.    3.    1.    1   0   0
37    0.    4.    1.    1   0   0
38    1.    4.    1.    0   0   0
39    2.    4.    1.    0   0   0
40    3.    4.    1.    0   0   0
41    4.    4.    1.    0   0   0
42    5.    4.    1.    0   0   0
43    6.    4.    1.    0   0   0
44    7.    4.    1.    0   0   0
45    8.    4.    1.    1   0   0
46    0.    5.    1.    1   0   0
47    1.    5.    1.    0   0   0
48    2.    5.    1.    0   0   0
49    3.    5.    1.    0   0   0
50    4.    5.    1.    0   0   0
51    5.    5.    1.    0   0   0
52    6.    5.    1.    0   0   0
53    7.    5.    1.    0   0   0
54    8.    5.    1.    1   0   0
55    0.    0.    0.    1   1   1
```

```
56     1.     0.     0.     1    1    1
57     2.     0.     0.     1    1    1
58     3.     0.     0.     1    1    1
59     4.     0.     0.     1    1    1
60     5.     0.     0.     1    1    1
61     6.     0.     0.     1    1    1
62     7.     0.     0.     1    1    1
63     8.     0.     0.     1    1    1
64     0.     1.     0.     1    0    0
65     1.     1.     0.     0    0    0
66     2.     1.     0.     0    0    0
67     3.     1.     0.     0    0    0
68     4.     1.     0.     0    0    0
69     5.     1.     0.     0    0    0
70     6.     1.     0.     0    0    0
71     7.     1.     0.     0    0    0
72     8.     1.     0.     1    0    0
73     0.     2.     0.     1    0    0
74     1.     2.     0.     0    0    0
75     2.     2.     0.     0    0    0
76     3.     2.     0.     0    0    0
77     4.     2.     0.     0    0    0
78     5.     2.     0.     0    0    0
79     6.     2.     0.     0    0    0
80     7.     2.     0.     0    0    0
81     8.     2.     0.     1    0    0
82     0.     3.     0.     1    0    0
83     1.     3.     0.     0    0    0
84     2.     3.     0.     0    0    0
85     3.     3.     0.     0    0    0
86     4.     3.     0.     0    0    0
87     5.     3.     0.     0    0    0
88     6.     3.     0.     0    0    0
89     7.     3.     0.     0    0    0
90     8.     3.     0.     1    0    0
91     0.     4.     0.     1    0    0
92     1.     4.     0.     0    0    0
93     2.     4.     0.     0    0    0
94     3.     4.     0.     0    0    0
95     4.     4.     0.     0    0    0
96     5.     4.     0.     0    0    0
97     6.     4.     0.     0    0    0
98     7.     4.     0.     0    0    0
99     8.     4.     0.     1    0    0
100    0.     5.     0.     1    0    0
101    1.     5.     0.     0    0    0
102    2.     5.     0.     0    0    0
103    3.     5.     0.     0    0    0
104    4.     5.     0.     0    0    0
105    5.     5.     0.     0    0    0
106    6.     5.     0.     0    0    0
107    7.     5.     0.     0    0    0
108    8.     5.     0.     1    0    0
1  1   2  11  10  55  56  65  64  1  1  1  1  1
2  2   3  12  11  56  57  66  65  1  1  2  1  1
3  3   4  13  12  57  58  67  66  1  1  3  1  1
4  4   5  14  13  58  59  68  67  1  1  4  1  1
5  5   6  15  14  59  60  69  68  1  1  5  1  1
```

```
6   6   7   16   15   60   61   70   69   1   1   6   1   1
7   7   8   17   16   61   62   71   70   1   1   7   1   1
8   8   9   18   17   62   63   72   71   1   1   8   1   1
9    10   11   20   19   64   65   74   73   1   2   1   1   1
10   11   12   21   20   65   66   75   74   1   2   2   1   1
11   12   13   22   21   66   67   76   75   1   2   3   1   1
12   13   14   23   22   67   68   77   76   1   2   4   1   1
13   14   15   24   23   68   69   78   77   1   2   5   1   1
14   15   16   25   24   69   70   79   78   1   2   6   1   1
15   16   17   26   25   70   71   80   79   1   2   7   1   1
16   17   18   27   26   71   72   81   80   1   2   8   1   1
17   19   20   29   28   73   74   83   82   1   3   1   1   1
18   20   21   30   29   74   75   84   83   1   3   2   1   1
19   21   22   31   30   75   76   85   84   1   3   3   1   1
20   22   23   32   31   76   77   86   85   1   3   4   1   1
21   23   24   33   32   77   78   87   86   1   3   5   1   1
22   24   25   34   33   78   79   88   87   1   3   6   1   1
23   25   26   35   34   79   80   89   88   1   3   7   1   1
24   26   27   36   35   80   81   90   89   1   3   8   1   1
25   28   29   38   37   82   83   92   91   1   4   1   1   1
26   29   30   39   38   83   84   93   92   1   4   2   1   1
27   30   31   40   39   84   85   94   93   1   4   3   1   1
28   31   32   41   40   85   86   95   94   1   4   4   1   1
29   32   33   42   41   86   87   96   95   1   4   5   1   1
30   33   34   43   42   87   88   97   96   1   4   6   1   1
31   34   35   44   43   88   89   98   97   1   4   7   1   1
32   35   36   45   44   89   90   99   98   1   4   8   1   1
33   37   38   47   46   91   92   101   100   1   5   1   1   1
34   38   39   48   47   92   93   102   101   1   5   2   1   1
35   39   40   49   48   93   94   103   102   1   5   3   1   1
36   40   41   50   49   94   95   104   103   1   5   4   1   1
37   41   42   51   50   95   96   105   104   1   5   5   1   1
38   42   43   52   51   96   97   106   105   1   5   6   1   1
39   43   44   53   52   97   98   107   106   1   5   7   1   1
40   44   45   54   53   98   99   108   107   1   5   8   1   1
1 1 7.4e-2   15000.0   0.30   360.
0.    0.   2    500.    0.
1 2
13
0.                    0.
0.025                -100.0
0.05                  0.
0.15                  0.
0.175                -100.0
0.20                  0.
0.30                  0.
0.325                -100.0
0.350                 0.
0.450                 0.
0.475                -100.0
0.50                  0.
0.70                  0.
50   2 1
104 2 1

40 0 2
41 0 2
42 0 2
```

Sample output file for Solid3D

card 1 Impulsive Loading on straight edge boundary(J2 Material)

---

card 2 parameter card

no of time-steps skipped between outputs = 50
number of nodes = 108
number of elements = 40
number of materials = 1
number of output req = 3
no. of d.o.f/node = 3
no. of time steps = 7000
time increment = .100E-03
coeff of mass damping = .100E+03
tolerance limit = .100E-09
acceleration of gravity = .00000

card 3 index card

index for accel. = 0
index for force = 1
index for I. C. = 0
index for mesh output(1) or not(0) = 1

card 4 nodal point data

node no.	x-ord	y-ord	z-ord	ifx	ify	ifz
1	.00	.00	1.00	1	1	1
2	1.00	.00	1.00	1	1	1
3	2.00	.00	1.00	1	1	1
4	3.00	.00	1.00	1	1	1
5	4.00	.00	1.00	1	1	1
6	5.00	.00	1.00	1	1	1
7	6.00	.00	1.00	1	1	1
8	7.00	.00	1.00	1	1	1
9	8.00	.00	1.00	1	1	1
10	.00	1.00	1.00	1	0	0
11	1.00	1.00	1.00	0	0	0
12	2.00	1.00	1.00	0	0	0
13	3.00	1.00	1.00	0	0	0
14	4.00	1.00	1.00	0	0	0
15	5.00	1.00	1.00	0	0	0
16	6.00	1.00	1.00	0	0	0
17	7.00	1.00	1.00	0	0	0
18	8.00	1.00	1.00	1	0	0
19	.00	2.00	1.00	1	0	0
20	1.00	2.00	1.00	0	0	0
21	2.00	2.00	1.00	0	0	0
22	3.00	2.00	1.00	0	0	0
23	4.00	2.00	1.00	0	0	0
24	5.00	2.00	1.00	0	0	0
25	6.00	2.00	1.00	0	0	0
26	7.00	2.00	1.00	0	0	0
27	8.00	2.00	1.00	1	0	0
28	.00	3.00	1.00	1	0	0
29	1.00	3.00	1.00	0	0	0
30	2.00	3.00	1.00	0	0	0
31	3.00	3.00	1.00	0	0	0
32	4.00	3.00	1.00	0	0	0
33	5.00	3.00	1.00	0	0	0

34	6.00	3.00	1.00	0	0	0
35	7.00	3.00	1.00	0	0	0
36	8.00	3.00	1.00	1	0	0
37	.00	4.00	1.00	1	0	0
38	1.00	4.00	1.00	0	0	0
39	2.00	4.00	1.00	0	0	0
40	3.00	4.00	1.00	0	0	0
41	4.00	4.00	1.00	0	0	0
42	5.00	4.00	1.00	0	0	0
43	6.00	4.00	1.00	0	0	0
44	7.00	4.00	1.00	0	0	0
45	8.00	4.00	1.00	1	0	0
46	.00	5.00	1.00	1	0	0
47	1.00	5.00	1.00	0	0	0
48	2.00	5.00	1.00	0	0	0
49	3.00	5.00	1.00	0	0	0
50	4.00	5.00	1.00	0	0	0
51	5.00	5.00	1.00	0	0	0
52	6.00	5.00	1.00	0	0	0
53	7.00	5.00	1.00	0	0	0
54	8.00	5.00	1.00	1	0	0
55	.00	.00	.00	1	1	1
56	1.00	.00	.00	1	1	1
57	2.00	.00	.00	1	1	1
58	3.00	.00	.00	1	1	1
59	4.00	.00	.00	1	1	1
60	5.00	.00	.00	1	1	1
61	6.00	.00	.00	1	1	1
62	7.00	.00	.00	1	1	1
63	8.00	.00	.00	1	1	1
64	.00	1.00	.00	1	0	0
65	1.00	1.00	.00	0	0	0
66	2.00	1.00	.00	0	0	0
67	3.00	1.00	.00	0	0	0
68	4.00	1.00	.00	0	0	0
69	5.00	1.00	.00	0	0	0
70	6.00	1.00	.00	0	0	0
71	7.00	1.00	.00	0	0	0
72	8.00	1.00	.00	1	0	0
73	.00	2.00	.00	1	0	0
74	1.00	2.00	.00	0	0	0
75	2.00	2.00	.00	0	0	0
76	3.00	2.00	.00	0	0	0
77	4.00	2.00	.00	0	0	0
78	5.00	2.00	.00	0	0	0
79	6.00	2.00	.00	0	0	0
80	7.00	2.00	.00	0	0	0
81	8.00	2.00	.00	1	0	0
82	.00	3.00	.00	1	0	0
83	1.00	3.00	.00	0	0	0
84	2.00	3.00	.00	0	0	0
85	3.00	3.00	.00	0	0	0
86	4.00	3.00	.00	0	0	0
87	5.00	3.00	.00	0	0	0
88	6.00	3.00	.00	0	0	0
89	7.00	3.00	.00	0	0	0
90	8.00	3.00	.00	1	0	0

91	.00	4.00	.00	1	0	0
92	1.00	4.00	.00	0	0	0
93	2.00	4.00	.00	0	0	0
94	3.00	4.00	.00	0	0	0
95	4.00	4.00	.00	0	0	0
96	5.00	4.00	.00	0	0	0
97	6.00	4.00	.00	0	0	0
98	7.00	4.00	.00	0	0	0
99	8.00	4.00	.00	1	0	0
100	.00	5.00	.00	1	0	0
101	1.00	5.00	.00	0	0	0
102	2.00	5.00	.00	0	0	0
103	3.00	5.00	.00	0	0	0
104	4.00	5.00	.00	0	0	0
105	5.00	5.00	.00	0	0	0
106	6.00	5.00	.00	0	0	0
107	7.00	5.00	.00	0	0	0
108	8.00	5.00	.00	1	0	0

card 5 element data

ele.no.	N1	N2	N3	N4	N5	N6	N7	N8	mat	row	col	E-con.
1	1	2	11	10	55	56	65	64	1	1	1	1
2	2	3	12	11	56	57	66	65	1	1	2	1
3	3	4	13	12	57	58	67	66	1	1	3	1
4	4	5	14	13	58	59	68	67	1	1	4	1
5	5	6	15	14	59	60	69	68	1	1	5	1
6	6	7	16	15	60	61	70	69	1	1	6	1
7	7	8	17	16	61	62	71	70	1	1	7	1
8	8	9	18	17	62	63	72	71	1	1	8	1
9	10	11	20	19	64	65	74	73	1	2	1	1
10	11	12	21	20	65	66	75	74	1	2	2	1
11	12	13	22	21	66	67	76	75	1	2	3	1
12	13	14	23	22	67	68	77	76	1	2	4	1
13	14	15	24	23	68	69	78	77	1	2	5	1
14	15	16	25	24	69	70	79	78	1	2	6	1
15	16	17	26	25	70	71	80	79	1	2	7	1
16	17	18	27	26	71	72	81	80	1	2	8	1
17	19	20	29	28	73	74	83	82	1	3	1	1
18	20	21	30	29	74	75	84	83	1	3	2	1
19	21	22	31	30	75	76	85	84	1	3	3	1
20	22	23	32	31	76	77	86	85	1	3	4	1
21	23	24	33	32	77	78	87	86	1	3	5	1
22	24	25	34	33	78	79	88	87	1	3	6	1
23	25	26	35	34	79	80	89	88	1	3	7	1
24	26	27	36	35	80	81	90	89	1	3	8	1
25	28	29	38	37	82	83	92	91	1	4	1	1
26	29	30	39	38	83	84	93	92	1	4	2	1
27	30	31	40	39	84	85	94	93	1	4	3	1
28	31	32	41	40	85	86	95	94	1	4	4	1
29	32	33	42	41	86	87	96	95	1	4	5	1
30	33	34	43	42	87	88	97	96	1	4	6	1
31	34	35	44	43	88	89	98	97	1	4	7	1
32	35	36	45	44	89	90	99	98	1	4	8	1
33	37	38	47	46	91	92	101	100	1	5	1	1
34	38	39	48	47	92	93	102	101	1	5	2	1
35	39	40	49	48	93	94	103	102	1	5	3	1
36	40	41	50	49	94	95	104	103	1	5	4	1

```
 37      41   42   51   50   95   96  105  104   1    5    5    1
 38      42   43   52   51   96   97  106  105   1    5    6    1
 39      43   44   53   52   97   98  107  106   1    5    7    1
 40      44   45   54   53   98   99  108  107   1    5    8    1

card  6 & 7    material property data
        material  material  mass      Youngs    Poisson   tensile
        group no. type no.  density   modulus    ratio    strength
           1         1    .7400E-01  .1500E+05   .300    .3600E+03
                 cohesion   phi     yield     tangent  hardening
                            angle   criterion  modulus    rule
                .0000E+00     .00      2      .5000E+03  .000

card  11     prescribed impact force
                 total no. of impact force history          =    1
                 total no. of nodes applied by impact force =    2

card  12 & 13     impact force history card
               force history no.     pair no.     time         iforce
                      1                1       .0000E+00       .0000E+00
                      1                2       .2500E-01      -.1000E+03
                      1                3       .5000E-01       .0000E+00
                      1                4       .1500E+00       .0000E+00
                      1                5       .1750E+00      -.1000E+03
                      1                6       .2000E+00       .0000E+00
                      1                7       .3000E+00       .0000E+00
                      1                8       .3250E+00      -.1000E+03
                      1                9       .3500E+00       .0000E+00
                      1               10       .4500E+00       .0000E+00
                      1               11       .4750E+00      -.1000E+03
                      1               12       .5000E+00       .0000E+00
                      1               13       .7000E+00       .0000E+00

card  14     nodal impact force information
             node no.    x-(1),y-(2),z-(3)   force history no.
                50           2                   1
               104           2                   1

card  21   output information card
            seq.    node#      d-(0),v-(1),a-(2),   x(1),y(2),z(3)
                                   stress-(3)      xy(4),yz(5),xz(6)
             1        40               0                   2
             2        41               0                   2
             3        42               0                   2
nstep=         50

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        100

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        150

 Plastic element no [element no.Gauss point no] =
```

```
     NONE
nstep=        200

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        250

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        300

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        350

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        400

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        450

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        550

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        600

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        650

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        700

 Plastic element no [element no.Gauss point no] =

     NONE
```

```
nstep=        750

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        800

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        850

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        900

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=        950

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1050

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1100

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1150

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1200

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1250

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1300
```

```
 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1350

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1400

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1450

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1550

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1600

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1650

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1700

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1750

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1800

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1850

 Plastic element no [element no.Gauss point no] =
```

```
     NONE
nstep=       1900

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       1950

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2050

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2100

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2150

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2200

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2250

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2300

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2350

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2400

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2450
```

```
 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2550

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2600

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2650

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2700

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2750

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2800

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2850

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2900

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       2950

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3000

 Plastic element no [element no.Gauss point no] =
```

```
     NONE
nstep=       3050

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3100

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3150

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3200

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3250

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3300

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3350

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3400

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3450

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3550

 Plastic element no [element no.Gauss point no] =

     NONE
```

```
nstep=       3600

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3650

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3700

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3750

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3800

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3850

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3900

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       3950

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4050

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4100

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4150
```

```
 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4200

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4250

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4300

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4350

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4400

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4450

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4550

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4600

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4650

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4700

 Plastic element no [element no.Gauss point no] =
```

```
     NONE
nstep=       4750

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4800

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4850

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4900

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       4950

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5050

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5100

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5150

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5200

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5250

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5300
```

```
 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5350

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5400

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5450

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5550

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5600

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5650

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5700

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5750

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5800

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5850

 Plastic element no [element no.Gauss point no] =
```

```
     NONE
nstep=       5900

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       5950

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6000

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6050

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6100

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6150

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6200

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6250

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6300

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6350

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6400

 Plastic element no [element no.Gauss point no] =

     NONE
```

```
nstep=       6450

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6500

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6550

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6600

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6650

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6700

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6750

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6800

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6850

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6900

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       6950

 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       7000
```

```
 Plastic element no [element no.Gauss point no] =

     NONE
nstep=       7000

 Plastic element no =>[Element no.Gauss point no] =

     NONE
```

card 21 output information card

	seq.	node#	d-(0),v-(1),a-(2), stress-(3)	x(1),y(2),z(3) xy(4),yz(5),xz(6)
	1	40	0	2
	2	41	0	2
	3	42	0	2
time =	.50000E-02	-.143E-03	-.407E-03	-.143E-03
time =	.10000E-01	-.124E-02	-.297E-02	-.124E-02
time =	.15000E-01	-.338E-02	-.599E-02	-.338E-02
time =	.20000E-01	-.574E-02	-.948E-02	-.574E-02
time =	.25000E-01	-.813E-02	-.129E-01	-.813E-02
time =	.30000E-01	-.991E-02	-.151E-01	-.991E-02
time =	.35000E-01	-.956E-02	-.127E-01	-.956E-02
time =	.40000E-01	-.710E-02	-.940E-02	-.710E-02
time =	.45000E-01	-.418E-02	-.531E-02	-.418E-02
time =	.50000E-01	-.123E-02	-.140E-02	-.123E-02
time =	.55000E-01	.885E-03	.153E-02	.885E-03
time =	.60000E-01	.159E-02	.153E-02	.159E-02
time =	.65000E-01	.121E-02	.113E-02	.121E-02
time =	.70000E-01	.555E-03	.530E-03	.555E-03
time =	.75000E-01	-.701E-04	-.712E-04	-.701E-04
time =	.80000E-01	-.323E-03	-.406E-03	-.323E-03
time =	.85000E-01	-.340E-03	-.302E-03	-.340E-03
time =	.90000E-01	-.268E-03	-.180E-03	-.268E-03
time =	.95000E-01	-.114E-03	-.145E-03	-.114E-03
time =	.10000E+00	.153E-04	-.169E-04	.153E-04
time =	.10500E+00	.957E-04	.105E-03	.957E-04
time =	.11000E+00	.130E-03	.125E-03	.130E-03
time =	.11500E+00	.941E-04	.905E-04	.941E-04
time =	.12000E+00	.233E-04	.359E-04	.233E-04
time =	.12500E+00	-.352E-04	-.281E-04	-.352E-04
time =	.13000E+00	-.553E-04	-.657E-04	-.553E-04
time =	.13500E+00	-.423E-04	-.462E-04	-.423E-04
time =	.14000E+00	-.137E-04	-.990E-05	-.137E-04
time =	.14500E+00	.108E-04	.104E-04	.108E-04
time =	.15000E+00	.193E-04	.193E-04	.193E-04
time =	.15500E+00	-.128E-03	-.389E-03	-.128E-03
time =	.16000E+00	-.123E-02	-.297E-02	-.123E-02
time =	.16500E+00	-.338E-02	-.599E-02	-.338E-02
time =	.17000E+00	-.574E-02	-.949E-02	-.574E-02
time =	.17500E+00	-.814E-02	-.129E-01	-.814E-02
time =	.18000E+00	-.991E-02	-.152E-01	-.991E-02
time =	.18500E+00	-.957E-02	-.127E-01	-.957E-02
time =	.19000E+00	-.710E-02	-.940E-02	-.710E-02
time =	.19500E+00	-.418E-02	-.531E-02	-.418E-02
time =	.20000E+00	-.123E-02	-.140E-02	-.123E-02
time =	.20500E+00	.886E-03	.153E-02	.886E-03
time =	.21000E+00	.159E-02	.153E-02	.159E-02
time =	.21500E+00	.121E-02	.113E-02	.121E-02
time =	.22000E+00	.554E-03	.529E-03	.554E-03
time =	.22500E+00	-.706E-04	-.716E-04	-.706E-04
time =	.23000E+00	-.323E-03	-.406E-03	-.323E-03
time =	.23500E+00	-.340E-03	-.301E-03	-.340E-03
time =	.24000E+00	-.268E-03	-.179E-03	-.268E-03
time =	.24500E+00	-.114E-03	-.145E-03	-.114E-03
time =	.25000E+00	.154E-04	-.169E-04	.154E-04
time =	.25500E+00	.957E-04	.105E-03	.957E-04

time =	.26000E+00	.130E-03	.125E-03	.130E-03
time =	.26500E+00	.940E-04	.905E-04	.940E-04
time =	.27000E+00	.233E-04	.359E-04	.233E-04
time =	.27500E+00	-.352E-04	-.281E-04	-.352E-04
time =	.28000E+00	-.553E-04	-.657E-04	-.553E-04
time =	.28500E+00	-.423E-04	-.461E-04	-.423E-04
time =	.29000E+00	-.137E-04	-.989E-05	-.137E-04
time =	.29500E+00	.108E-04	.104E-04	.108E-04
time =	.30000E+00	.193E-04	.193E-04	.193E-04
time =	.30500E+00	-.128E-03	-.389E-03	-.128E-03
time =	.31000E+00	-.123E-02	-.297E-02	-.123E-02
time =	.31500E+00	-.338E-02	-.599E-02	-.338E-02
time =	.32000E+00	-.574E-02	-.949E-02	-.574E-02
time =	.32500E+00	-.814E-02	-.129E-01	-.814E-02
time =	.33000E+00	-.991E-02	-.152E-01	-.991E-02
time =	.33500E+00	-.957E-02	-.127E-01	-.957E-02
time =	.34000E+00	-.710E-02	-.940E-02	-.710E-02
time =	.34500E+00	-.418E-02	-.531E-02	-.418E-02
time =	.35000E+00	-.123E-02	-.140E-02	-.123E-02
time =	.35500E+00	.886E-03	.153E-02	.886E-03
time =	.36000E+00	.159E-02	.153E-02	.159E-02
time =	.36500E+00	.121E-02	.113E-02	.121E-02
time =	.37000E+00	.554E-03	.529E-03	.554E-03
time =	.37500E+00	-.706E-04	-.716E-04	-.706E-04
time =	.38000E+00	-.323E-03	-.406E-03	-.323E-03
time =	.38500E+00	-.340E-03	-.301E-03	-.340E-03
time =	.39000E+00	-.268E-03	-.179E-03	-.268E-03
time =	.39500E+00	-.114E-03	-.145E-03	-.114E-03
time =	.40000E+00	.154E-04	-.169E-04	.154E-04
time =	.40500E+00	.957E-04	.105E-03	.957E-04
time =	.41000E+00	.130E-03	.125E-03	.130E-03
time =	.41500E+00	.940E-04	.905E-04	.940E-04
time =	.42000E+00	.233E-04	.359E-04	.233E-04
time =	.42500E+00	-.352E-04	-.281E-04	-.352E-04
time =	.43000E+00	-.553E-04	-.657E-04	-.553E-04
time =	.43500E+00	-.423E-04	-.461E-04	-.423E-04
time =	.44000E+00	-.137E-04	-.989E-05	-.137E-04
time =	.44500E+00	.108E-04	.104E-04	.108E-04
time =	.45000E+00	.193E-04	.193E-04	.193E-04
time =	.45500E+00	-.128E-03	-.389E-03	-.128E-03
time =	.46000E+00	-.123E-02	-.297E-02	-.123E-02
time =	.46500E+00	-.338E-02	-.599E-02	-.338E-02
time =	.47000E+00	-.574E-02	-.949E-02	-.574E-02
time =	.47500E+00	-.814E-02	-.129E-01	-.814E-02
time =	.48000E+00	-.991E-02	-.152E-01	-.991E-02
time =	.48500E+00	-.957E-02	-.127E-01	-.957E-02
time =	.49000E+00	-.710E-02	-.940E-02	-.710E-02
time =	.49500E+00	-.418E-02	-.531E-02	-.418E-02
time =	.50000E+00	-.123E-02	-.140E-02	-.123E-02
time =	.50500E+00	.886E-03	.153E-02	.886E-03
time =	.51000E+00	.159E-02	.153E-02	.159E-02
time =	.51500E+00	.121E-02	.113E-02	.121E-02
time =	.52000E+00	.554E-03	.529E-03	.554E-03
time =	.52500E+00	-.706E-04	-.716E-04	-.706E-04
time =	.53000E+00	-.323E-03	-.406E-03	-.323E-03
time =	.53500E+00	-.340E-03	-.301E-03	-.340E-03
time =	.54000E+00	-.268E-03	-.179E-03	-.268E-03
time =	.54500E+00	-.114E-03	-.145E-03	-.114E-03

time =	.55000E+00	.154E-04	-.169E-04	.154E-04
time =	.55500E+00	.957E-04	.105E-03	.957E-04
time =	.56000E+00	.130E-03	.125E-03	.130E-03
time =	.56500E+00	.940E-04	.905E-04	.940E-04
time =	.57000E+00	.233E-04	.359E-04	.233E-04
time =	.57500E+00	-.352E-04	-.281E-04	-.352E-04
time =	.58000E+00	-.553E-04	-.657E-04	-.553E-04
time =	.58500E+00	-.423E-04	-.461E-04	-.423E-04
time =	.59000E+00	-.137E-04	-.989E-05	-.137E-04
time =	.59500E+00	.108E-04	.104E-04	.108E-04
time =	.60000E+00	.193E-04	.193E-04	.193E-04
time =	.60500E+00	.148E-04	.173E-04	.148E-04
time =	.61000E+00	.553E-05	.464E-05	.553E-05
time =	.61500E+00	-.199E-05	-.361E-05	-.199E-05
time =	.62000E+00	-.446E-05	-.460E-05	-.446E-05
time =	.62500E+00	-.434E-05	-.330E-05	-.434E-05
time =	.63000E+00	-.257E-05	-.268E-05	-.257E-05
time =	.63500E+00	-.744E-06	-.815E-06	-.744E-06
time =	.64000E+00	.483E-06	.765E-06	.483E-06
time =	.64500E+00	.123E-05	.921E-06	.123E-05
time =	.65000E+00	.128E-05	.105E-05	.128E-05
time =	.65500E+00	.853E-06	.103E-05	.853E-06
time =	.66000E+00	.195E-06	.350E-06	.195E-06
time =	.66500E+00	-.373E-06	-.444E-06	-.373E-06
time =	.67000E+00	-.617E-06	-.634E-06	-.617E-06
time =	.67500E+00	-.454E-06	-.438E-06	-.454E-06
time =	.68000E+00	-.128E-06	-.177E-06	-.128E-06
time =	.68500E+00	.123E-06	.111E-06	.123E-06
time =	.69000E+00	.223E-06	.273E-06	.223E-06
time =	.69500E+00	.178E-06	.186E-06	.178E-06
time =	.70000E+00	.575E-07	.357E-07	.575E-07

Problem 6.

A rectangular plate (or half space) of viscoelastic material of Maxwell type subjected to ramp loadings

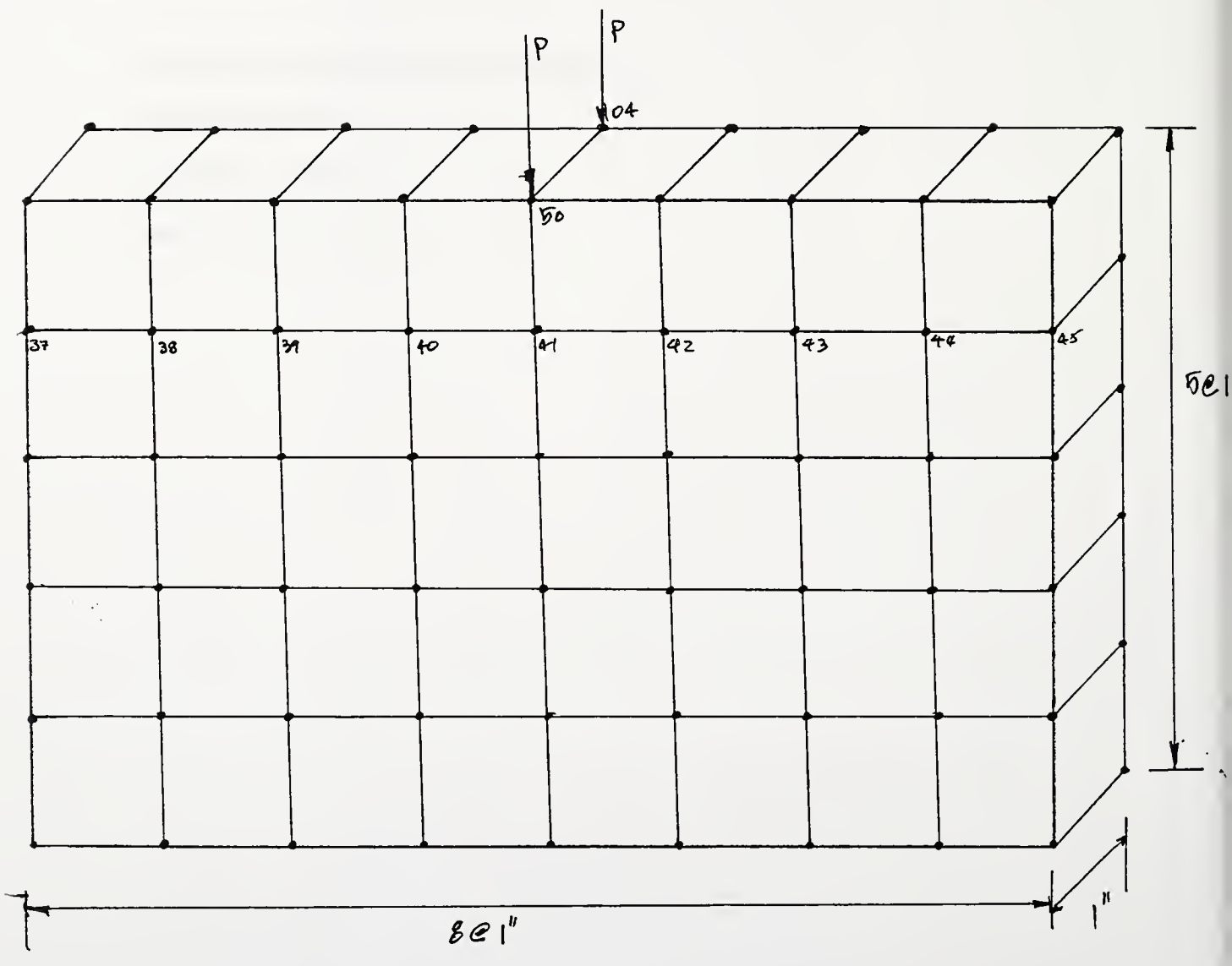
- **Problem description and loading functions**
- **Deflection and stress plots**
- **Input file for Soild3D**
- **Sample output of Soild3D**

Problem description and loading functions

3D Straight edge boundary with ramp loading on viscoelastic material

Input data:

1. Geometry and Finite element mesh are shown below:



2. Material has the following properties.

E	=	15000 psi
υ	=	0.3
τ	=	6.0 sec. (for viscoelastic)
ρ	=	7.4e-2 lb-sec^2/in^4

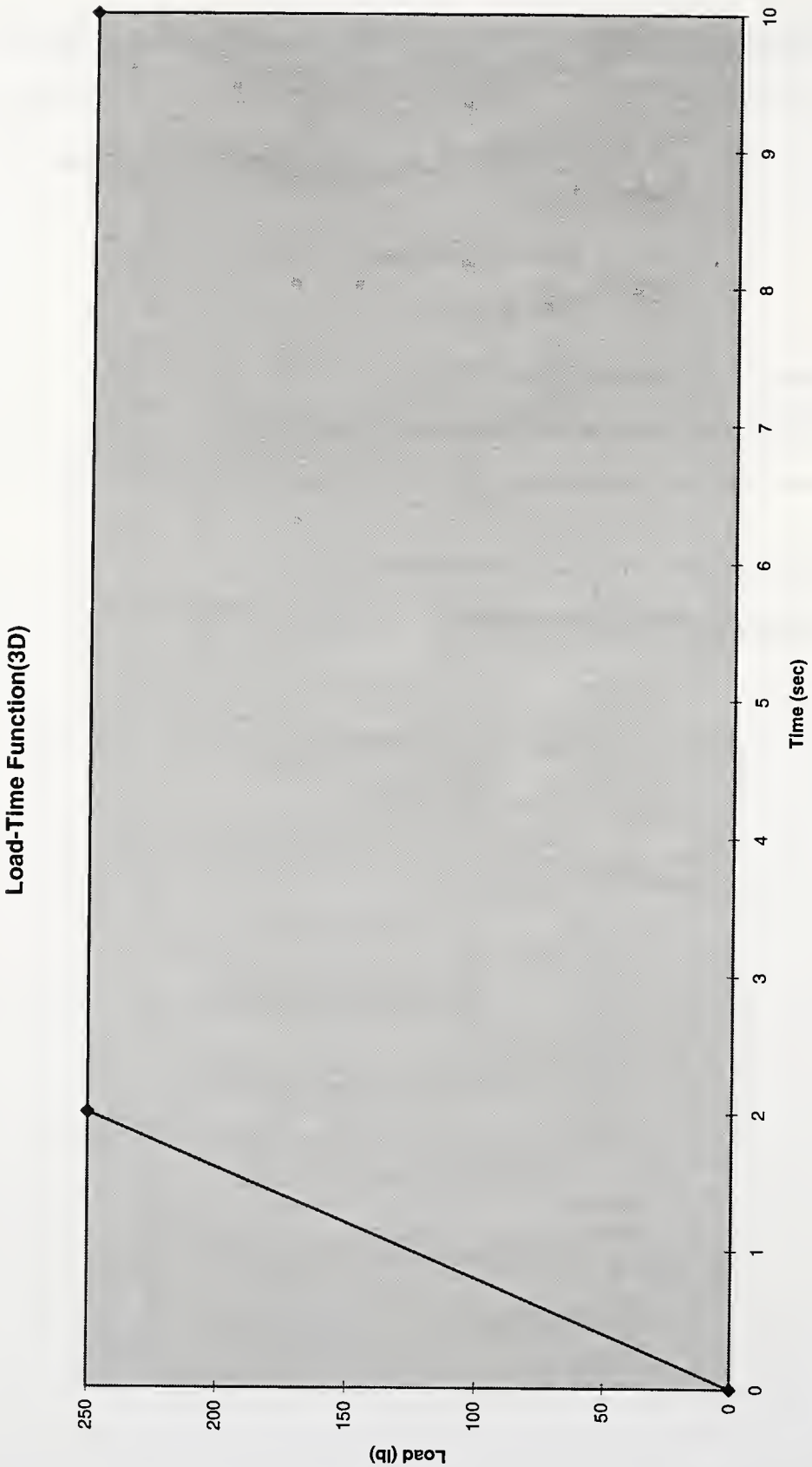
3. Load-time function is shown in the next following section.

4. The input data and output information are shown in the next following section.

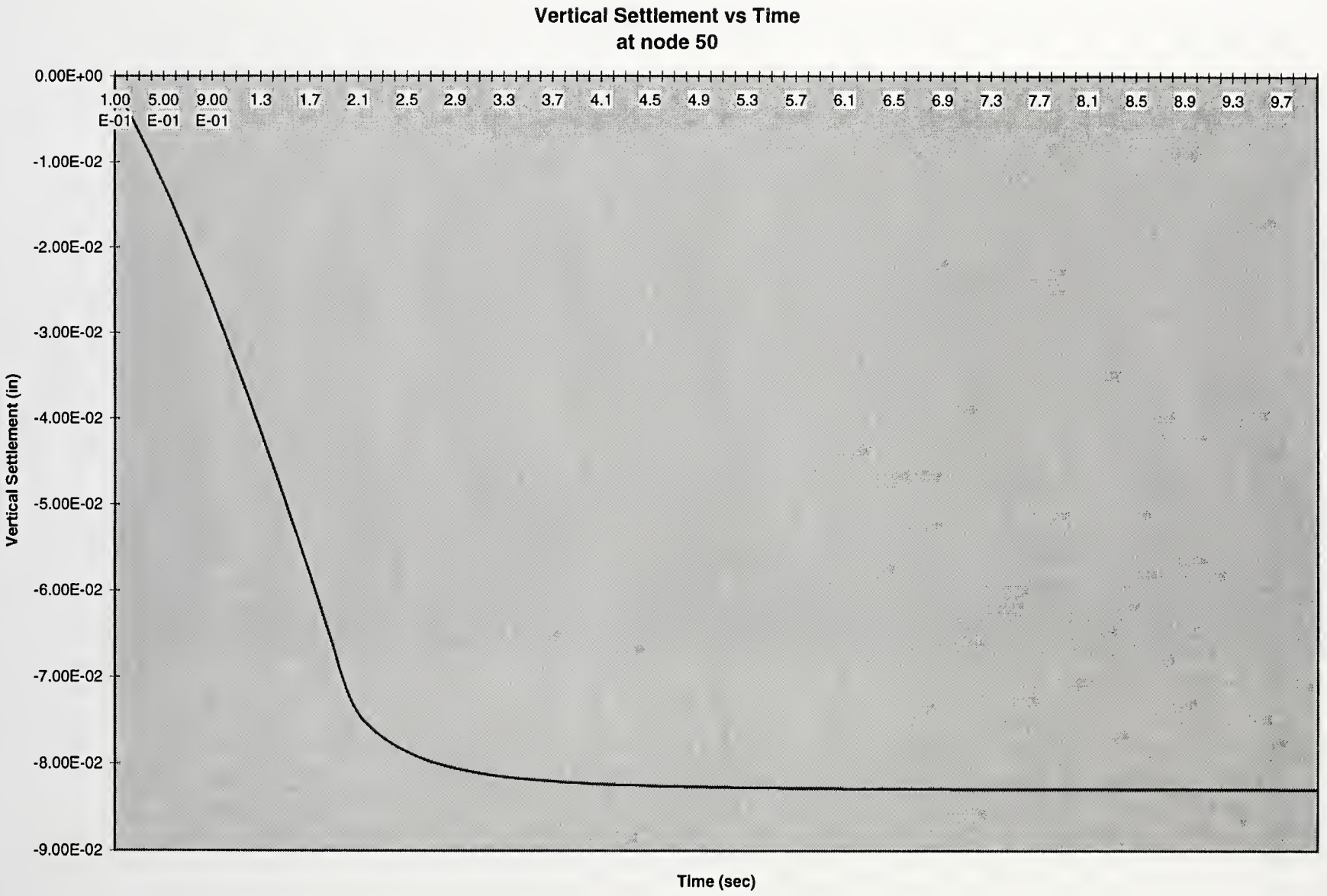
Problem Result

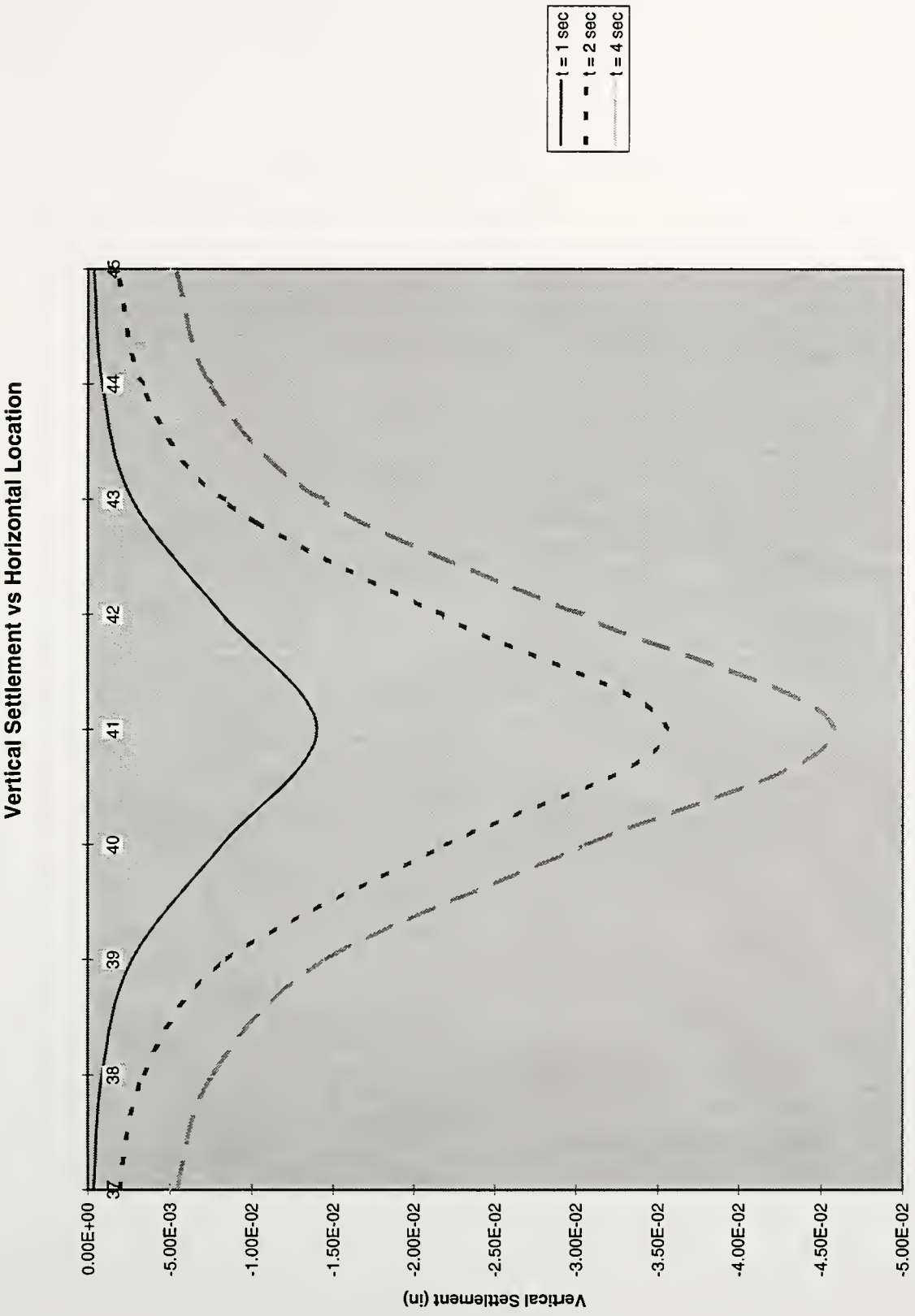
1. The vertical settlements of node 50 are plotted with respected to time.

2. The vertical settlement of horizontal plane are presented.


Load-Time Function(3D)
Load (lb)
250
200
150
100
50
0
0
1
2
3
4
5
6
7
8
9
10
Time (sec)

Deflection and stress plots


Vertical Settlement vs Time
at node 50
0.00E+00
-1.00E-02
-2.00E-02
-3.00E-02
-4.00E-02
-5.00E-02
-6.00E-02
-7.00E-02
-8.00E-02
-9.00E-02
Vertical Settlement (in)
1.00 E-01
5.00 E-01
9.00 E-01
1.3
1.7
2.1
2.5
2.9
3.3
3.7
4.1
4.5
4.9
5.3
5.7
6.1
6.5
6.9
7.3
7.7
8.1
8.5
8.9
9.3
9.7
Time (sec)


Vertical Settlement vs Horizontal Location
Vertical Settlement (in)
0.00E+00
-5.00E-03
-1.00E-02
-1.50E-02
-2.00E-02
-2.50E-02
-3.00E-02
-3.50E-02
-4.00E-02
-4.50E-02
-5.00E-02
37
38
39
40
41
42
43
44
45
Node No.
t = 1 sec
t = 2 sec
t = 4 sec

Input file for Solid3D

```
straight edge boundary w/ ramp load on Viscoelastic Material
1000 108 40 1 9 3 100000  1.e-4  1.e+4  1.e-10  0.
0 1 0 1
1     0.    0.    1.    1   1   1
2     1.    0.    1.    1   1   1
3     2.    0.    1.    1   1   1
4     3.    0.    1.    1   1   1
5     4.    0.    1.    1   1   1
6     5.    0.    1.    1   1   1
7     6.    0.    1.    1   1   1
8     7.    0.    1.    1   1   1
9     8.    0.    1.    1   1   1
10    0.    1.    1.    1   0   0
11    1.    1.    1.    0   0   0
12    2.    1.    1.    0   0   0
13    3.    1.    1.    0   0   0
14    4.    1.    1.    0   0   0
15    5.    1.    1.    0   0   0
16    6.    1.    1.    0   0   0
17    7.    1.    1.    0   0   0
18    8.    1.    1.    1   0   0
19    0.    2.    1.    1   0   0
20    1.    2.    1.    0   0   0
21    2.    2.    1.    0   0   0
22    3.    2.    1.    0   0   0
23    4.    2.    1.    0   0   0
24    5.    2.    1.    0   0   0
25    6.    2.    1.    0   0   0
26    7.    2.    1.    0   0   0
27    8.    2.    1.    1   0   0
28    0.    3.    1.    1   0   0
29    1.    3.    1.    0   0   0
30    2.    3.    1.    0   0   0
31    3.    3.    1.    0   0   0
32    4.    3.    1.    0   0   0
33    5.    3.    1.    0   0   0
34    6.    3.    1.    0   0   0
35    7.    3.    1.    0   0   0
36    8.    3.    1.    1   0   0
37    0.    4.    1.    1   0   0
38    1.    4.    1.    0   0   0
39    2.    4.    1.    0   0   0
40    3.    4.    1.    0   0   0
41    4.    4.    1.    0   0   0
42    5.    4.    1.    0   0   0
43    6.    4.    1.    0   0   0
44    7.    4.    1.    0   0   0
45    8.    4.    1.    1   0   0
46    0.    5.    1.    1   0   0
47    1.    5.    1.    0   0   0
48    2.    5.    1.    0   0   0
49    3.    5.    1.    0   0   0
50    4.    5.    1.    0   0   0
51    5.    5.    1.    0   0   0
52    6.    5.    1.    0   0   0
53    7.    5.    1.    0   0   0
54    8.    5.    1.    1   0   0
55    0.    0.    0.    1   1   1
56    1.    0.    0.    1   1   1
57    2.    0.    0.    1   1   1
```

```
58    3.    0.    0.    1   1   1
59    4.    0.    0.    1   1   1
60    5.    0.    0.    1   1   1
61    6.    0.    0.    1   1   1
62    7.    0.    0.    1   1   1
63    8.    0.    0.    1   1   1
64    0.    1.    0.    1   0   0
65    1.    1.    0.    0   0   0
66    2.    1.    0.    0   0   0
67    3.    1.    0.    0   0   0
68    4.    1.    0.    0   0   0
69    5.    1.    0.    0   0   0
70    6.    1.    0.    0   0   0
71    7.    1.    0.    0   0   0
72    8.    1.    0.    1   0   0
73    0.    2.    0.    1   0   0
74    1.    2.    0.    0   0   0
75    2.    2.    0.    0   0   0
76    3.    2.    0.    0   0   0
77    4.    2.    0.    0   0   0
78    5.    2.    0.    0   0   0
79    6.    2.    0.    0   0   0
80    7.    2.    0.    0   0   0
81    8.    2.    0.    1   0   0
82    0.    3.    0.    1   0   0
83    1.    3.    0.    0   0   0
84    2.    3.    0.    0   0   0
85    3.    3.    0.    0   0   0
86    4.    3.    0.    0   0   0
87    5.    3.    0.    0   0   0
88    6.    3.    0.    0   0   0
89    7.    3.    0.    0   0   0
90    8.    3.    0.    1   0   0
91    0.    4.    0.    1   0   0
92    1.    4.    0.    0   0   0
93    2.    4.    0.    0   0   0
94    3.    4.    0.    0   0   0
95    4.    4.    0.    0   0   0
96    5.    4.    0.    0   0   0
97    6.    4.    0.    0   0   0
98    7.    4.    0.    0   0   0
99    8.    4.    0.    1   0   0
100   0.    5.    0.    1   0   0
101   1.    5.    0.    0   0   0
102   2.    5.    0.    0   0   0
103   3.    5.    0.    0   0   0
104   4.    5.    0.    0   0   0
105   5.    5.    0.    0   0   0
106   6.    5.    0.    0   0   0
107   7.    5.    0.    0   0   0
108   8.    5.    0.    1   0   0
1   1   2   11   10   55   56   65   64   1   1   1   1   1
2   2   3   12   11   56   57   66   65   1   1   2   1   1
3   3   4   13   12   57   58   67   66   1   1   3   1   1
4   4   5   14   13   58   59   68   67   1   1   4   1   1
5   5   6   15   14   59   60   69   68   1   1   5   1   1
6   6   7   16   15   60   61   70   69   1   1   6   1   1
7   7   8   17   16   61   62   71   70   1   1   7   1   1
8   8   9   18   17   62   63   72   71   1   1   8   1   1
9    10   11   20   19   64   65   74   73   1   2   1   1   1
```

```
10  11  12  21  20  65  66  75  74  1  2  2  1  1
11  12  13  22  21  66  67  76  75  1  2  3  1  1
12  13  14  23  22  67  68  77  76  1  2  4  1  1
13  14  15  24  23  68  69  78  77  1  2  5  1  1
14  15  16  25  24  69  70  79  78  1  2  6  1  1
15  16  17  26  25  70  71  80  79  1  2  7  1  1
16  17  18  27  26  71  72  81  80  1  2  8  1  1
17  19  20  29  28  73  74  83  82  1  3  1  1  1
18  20  21  30  29  74  75  84  83  1  3  2  1  1
19  21  22  31  30  75  76  85  84  1  3  3  1  1
20  22  23  32  31  76  77  86  85  1  3  4  1  1
21  23  24  33  32  77  78  87  86  1  3  5  1  1
22  24  25  34  33  78  79  88  87  1  3  6  1  1
23  25  26  35  34  79  80  89  88  1  3  7  1  1
24  26  27  36  35  80  81  90  89  1  3  8  1  1
25  28  29  38  37  82  83  92  91  1  4  1  1  1
26  29  30  39  38  83  84  93  92  1  4  2  1  1
27  30  31  40  39  84  85  94  93  1  4  3  1  1
28  31  32  41  40  85  86  95  94  1  4  4  1  1
29  32  33  42  41  86  87  96  95  1  4  5  1  1
30  33  34  43  42  87  88  97  96  1  4  6  1  1
31  34  35  44  43  88  89  98  97  1  4  7  1  1
32  35  36  45  44  89  90  99  98  1  4  8  1  1
33  37  38  47  46  91  92  101  100  1  5  1  1  1
34  38  39  48  47  92  93  102  101  1  5  2  1  1
35  39  40  49  48  93  94  103  102  1  5  3  1  1
36  40  41  50  49  94  95  104  103  1  5  4  1  1
37  41  42  51  50  95  96  105  104  1  5  5  1  1
38  42  43  52  51  96  97  106  105  1  5  6  1  1
39  43  44  53  52  97  98  107  106  1  5  7  1  1
40  44  45  54  53  98  99  108  107  1  5  8  1  1
1 1 7.4e-2  15000.0  0.30  0.
0. 0. 1. 0. 0. 6.
1 2
3
0.                0.0
2.0              -250.0
100.             -250.0

50  2 1
104 2 1

37 0 2
38 0 2
39 0 2
40 0 2
41 0 2
42 0 2
43 0 2
44 0 2
45 0 2
```

Sample output file for Solid3D

card 1 3D straight edge boundary w/ ramp load on Viscoelastic Material

---

card 2 parameter card

no of time-steps skipped between outputs = 1000
number of nodes = 108
number of elements = 40
number of materials = 1
number of output req = 9
no. of d.o.f/node = 3
no. of time steps = 100000
time increment = .100E-03
coeff of mass damping = .100E+05
tolerance limit = .100E-09
acceleration of gravity = .00000

card 3 index card

index for accel. = 0
index for force = 1
index for I. C. = 0
index for mesh output(1) or not(0) = 1

card 4 nodal point data

node no.	x-ord	y-ord	z-ord	ifx	ify	ifz
1	.00	.00	1.00	1	1	1
2	1.00	.00	1.00	1	1	1
3	2.00	.00	1.00	1	1	1
4	3.00	.00	1.00	1	1	1
5	4.00	.00	1.00	1	1	1
6	5.00	.00	1.00	1	1	1
7	6.00	.00	1.00	1	1	1
8	7.00	.00	1.00	1	1	1
9	8.00	.00	1.00	1	1	1
10	.00	1.00	1.00	1	0	0
11	1.00	1.00	1.00	0	0	0
12	2.00	1.00	1.00	0	0	0
13	3.00	1.00	1.00	0	0	0
14	4.00	1.00	1.00	0	0	0
15	5.00	1.00	1.00	0	0	0
16	6.00	1.00	1.00	0	0	0
17	7.00	1.00	1.00	0	0	0
18	8.00	1.00	1.00	1	0	0
19	.00	2.00	1.00	1	0	0
20	1.00	2.00	1.00	0	0	0
21	2.00	2.00	1.00	0	0	0
22	3.00	2.00	1.00	0	0	0
23	4.00	2.00	1.00	0	0	0
24	5.00	2.00	1.00	0	0	0
25	6.00	2.00	1.00	0	0	0
26	7.00	2.00	1.00	0	0	0
27	8.00	2.00	1.00	1	0	0
28	.00	3.00	1.00	1	0	0
29	1.00	3.00	1.00	0	0	0
30	2.00	3.00	1.00	0	0	0
31	3.00	3.00	1.00	0	0	0
32	4.00	3.00	1.00	0	0	0
33	5.00	3.00	1.00	0	0	0
34	6.00	3.00	1.00	0	0	0
35	7.00	3.00	1.00	0	0	0
36	8.00	3.00	1.00	1	0	0

37	.00	4.00	1.00	1	0	0
38	1.00	4.00	1.00	0	0	0
39	2.00	4.00	1.00	0	0	0
40	3.00	4.00	1.00	0	0	0
41	4.00	4.00	1.00	0	0	0
42	5.00	4.00	1.00	0	0	0
43	6.00	4.00	1.00	0	0	0
44	7.00	4.00	1.00	0	0	0
45	8.00	4.00	1.00	1	0	0
46	.00	5.00	1.00	1	0	0
47	1.00	5.00	1.00	0	0	0
48	2.00	5.00	1.00	0	0	0
49	3.00	5.00	1.00	0	0	0
50	4.00	5.00	1.00	0	0	0
51	5.00	5.00	1.00	0	0	0
52	6.00	5.00	1.00	0	0	0
53	7.00	5.00	1.00	0	0	0
54	8.00	5.00	1.00	1	0	0
55	.00	.00	.00	1	1	1
56	1.00	.00	.00	1	1	1
57	2.00	.00	.00	1	1	1
58	3.00	.00	.00	1	1	1
59	4.00	.00	.00	1	1	1
60	5.00	.00	.00	1	1	1
61	6.00	.00	.00	1	1	1
62	7.00	.00	.00	1	1	1
63	8.00	.00	.00	1	1	1
64	.00	1.00	.00	1	0	0
65	1.00	1.00	.00	0	0	0
66	2.00	1.00	.00	0	0	0
67	3.00	1.00	.00	0	0	0
68	4.00	1.00	.00	0	0	0
69	5.00	1.00	.00	0	0	0
70	6.00	1.00	.00	0	0	0
71	7.00	1.00	.00	0	0	0
72	8.00	1.00	.00	1	0	0
73	.00	2.00	.00	1	0	0
74	1.00	2.00	.00	0	0	0
75	2.00	2.00	.00	0	0	0
76	3.00	2.00	.00	0	0	0
77	4.00	2.00	.00	0	0	0
78	5.00	2.00	.00	0	0	0
79	6.00	2.00	.00	0	0	0
80	7.00	2.00	.00	0	0	0
81	8.00	2.00	.00	1	0	0
82	.00	3.00	.00	1	0	0
83	1.00	3.00	.00	0	0	0
84	2.00	3.00	.00	0	0	0
85	3.00	3.00	.00	0	0	0
86	4.00	3.00	.00	0	0	0
87	5.00	3.00	.00	0	0	0
88	6.00	3.00	.00	0	0	0
89	7.00	3.00	.00	0	0	0
90	8.00	3.00	.00	1	0	0
91	.00	4.00	.00	1	0	0
92	1.00	4.00	.00	0	0	0
93	2.00	4.00	.00	0	0	0
94	3.00	4.00	.00	0	0	0
95	4.00	4.00	.00	0	0	0
96	5.00	4.00	.00	0	0	0

97	6.00	4.00	.00	0	0	0
98	7.00	4.00	.00	0	0	0
99	8.00	4.00	.00	1	0	0
100	.00	5.00	.00	1	0	0
101	1.00	5.00	.00	0	0	0
102	2.00	5.00	.00	0	0	0
103	3.00	5.00	.00	0	0	0
104	4.00	5.00	.00	0	0	0
105	5.00	5.00	.00	0	0	0
106	6.00	5.00	.00	0	0	0
107	7.00	5.00	.00	0	0	0
108	8.00	5.00	.00	1	0	0

card 5 element data

ele.no.	N1	N2	N3	N4	N5	N6	N7	N8	mat	row	col	E-con.
1	1	2	11	10	55	56	65	64	1	1	1	1
2	2	3	12	11	56	57	66	65	1	1	2	1
3	3	4	13	12	57	58	67	66	1	1	3	1
4	4	5	14	13	58	59	68	67	1	1	4	1
5	5	6	15	14	59	60	69	68	1	1	5	1
6	6	7	16	15	60	61	70	69	1	1	6	1
7	7	8	17	16	61	62	71	70	1	1	7	1
8	8	9	18	17	62	63	72	71	1	1	8	1
9	10	11	20	19	64	65	74	73	1	2	1	1
10	11	12	21	20	65	66	75	74	1	2	2	1
11	12	13	22	21	66	67	76	75	1	2	3	1
12	13	14	23	22	67	68	77	76	1	2	4	1
13	14	15	24	23	68	69	78	77	1	2	5	1
14	15	16	25	24	69	70	79	78	1	2	6	1
15	16	17	26	25	70	71	80	79	1	2	7	1
16	17	18	27	26	71	72	81	80	1	2	8	1
17	19	20	29	28	73	74	83	82	1	3	1	1
18	20	21	30	29	74	75	84	83	1	3	2	1
19	21	22	31	30	75	76	85	84	1	3	3	1
20	22	23	32	31	76	77	86	85	1	3	4	1
21	23	24	33	32	77	78	87	86	1	3	5	1
22	24	25	34	33	78	79	88	87	1	3	6	1
23	25	26	35	34	79	80	89	88	1	3	7	1
24	26	27	36	35	80	81	90	89	1	3	8	1
25	28	29	38	37	82	83	92	91	1	4	1	1
26	29	30	39	38	83	84	93	92	1	4	2	1
27	30	31	40	39	84	85	94	93	1	4	3	1
28	31	32	41	40	85	86	95	94	1	4	4	1
29	32	33	42	41	86	87	96	95	1	4	5	1
30	33	34	43	42	87	88	97	96	1	4	6	1
31	34	35	44	43	88	89	98	97	1	4	7	1
32	35	36	45	44	89	90	99	98	1	4	8	1
33	37	38	47	46	91	92	101	100	1	5	1	1
34	38	39	48	47	92	93	102	101	1	5	2	1
35	39	40	49	48	93	94	103	102	1	5	3	1
36	40	41	50	49	94	95	104	103	1	5	4	1
37	41	42	51	50	95	96	105	104	1	5	5	1
38	42	43	52	51	96	97	106	105	1	5	6	1
39	43	44	53	52	97	98	107	106	1	5	7	1
40	44	45	54	53	98	99	108	107	1	5	8	1

card 6 & 7 material property data

material group no.	material type no.	mass density	Youngs modulus	Poisson ratio	tensile strength
1	1	.7400E-01	.1500E+05	.300	.0000E+00

cohesion	phi angle	yield criterion	tangent modulus	hardening rule
.0000E+00	.00	1	.0000E+00	.000

card 11 prescribed impact force

total no. of impact force history = 1

total no. of nodes applied by impact force = 2

card 12 & 13 impact force history card

force history no.	pair no.	time	iforce
1	1	.0000E+00	.0000E+00
1	2	.2000E+01	-.2500E+03
1	3	.1000E+03	-.2500E+03

card 14 nodal impact force information

node no.	x-(1),y-(2),z-(3)	force history no.
50	2	1
104	2	1

card 21 output information card

seq.	node#	d-(0),v-(1),a-(2), stress-(3)	x(1),y(2),z(3) xy(4),yz(5),xz(6)
1	37	0	2
2	38	0	2
3	39	0	2
4	40	0	2
5	41	0	2
6	42	0	2
7	43	0	2
8	44	0	2
9	45	0	2

```
 card  21   output information card
              seq.     node#      d-(0),v-(1),a-(2),   x(1),y(2),z(3)
                                       stress-(3)      xy(4),yz(5),xz(6)
                  1        37              0                2
                  2        38              0                2
                  3        39              0                2
                  4        40              0                2
                  5        41              0                2
                  6        42              0                2
                  7        43              0                2
                  8        44              0                2
                  9        45              0                2
time =  .10000E+00  .561E-06 -.328E-07 -.242E-05 -.132E-03 -.342E-03 -.132E-03
                   -.242E-05 -.328E-07  .561E-06
time =  .20000E+00  .598E-05 -.180E-05 -.514E-04 -.538E-03 -.121E-02 -.538E-03
                   -.514E-04 -.180E-05  .598E-05
time =  .30000E+00  .146E-04 -.171E-04 -.179E-03 -.115E-02 -.237E-02 -.115E-02
                   -.179E-03 -.171E-04  .146E-04
time =  .40000E+00  .171E-04 -.564E-04 -.383E-03 -.190E-02 -.372E-02 -.190E-02
                   -.383E-03 -.564E-04  .171E-04
time =  .50000E+00  .536E-05 -.124E-03 -.653E-03 -.278E-02 -.522E-02 -.278E-02
                   -.653E-03 -.124E-03  .536E-05
time =  .60000E+00 -.250E-04 -.221E-03 -.979E-03 -.374E-02 -.682E-02 -.374E-02
                   -.979E-03 -.221E-03 -.250E-04
time =  .70000E+00 -.753E-04 -.345E-03 -.135E-02 -.477E-02 -.852E-02 -.477E-02
                   -.135E-02 -.345E-03 -.753E-04
time =  .80000E+00 -.145E-03 -.493E-03 -.176E-02 -.587E-02 -.103E-01 -.587E-02
                   -.176E-02 -.493E-03 -.145E-03
time =  .90000E+00 -.233E-03 -.664E-03 -.220E-02 -.701E-02 -.121E-01 -.701E-02
                   -.220E-02 -.664E-03 -.233E-03
time =  .10000E+01 -.337E-03 -.854E-03 -.268E-02 -.820E-02 -.140E-01 -.820E-02
                   -.268E-02 -.854E-03 -.337E-03
time =  .11000E+01 -.456E-03 -.106E-02 -.317E-02 -.943E-02 -.160E-01 -.943E-02
                   -.317E-02 -.106E-02 -.456E-03
time =  .12000E+01 -.588E-03 -.128E-02 -.369E-02 -.107E-01 -.180E-01 -.107E-01
                   -.369E-02 -.128E-02 -.588E-03
time =  .13000E+01 -.731E-03 -.152E-02 -.423E-02 -.120E-01 -.200E-01 -.120E-01
                   -.423E-02 -.152E-02 -.731E-03
time =  .14000E+01 -.884E-03 -.177E-02 -.479E-02 -.133E-01 -.221E-01 -.133E-01
                   -.479E-02 -.177E-02 -.884E-03
time =  .15000E+01 -.105E-02 -.203E-02 -.536E-02 -.147E-01 -.243E-01 -.147E-01
                   -.536E-02 -.203E-02 -.105E-02
time =  .16000E+01 -.121E-02 -.229E-02 -.594E-02 -.161E-01 -.265E-01 -.161E-01
                   -.594E-02 -.229E-02 -.121E-02
time =  .17000E+01 -.139E-02 -.257E-02 -.654E-02 -.175E-01 -.287E-01 -.175E-01
                   -.654E-02 -.257E-02 -.139E-02
time =  .18000E+01 -.157E-02 -.285E-02 -.716E-02 -.189E-01 -.310E-01 -.189E-01
                   -.716E-02 -.285E-02 -.157E-02
time =  .19000E+01 -.176E-02 -.315E-02 -.778E-02 -.204E-01 -.333E-01 -.204E-01
                   -.778E-02 -.315E-02 -.176E-02
time =  .20000E+01 -.195E-02 -.344E-02 -.842E-02 -.219E-01 -.357E-01 -.219E-01
                   -.842E-02 -.344E-02 -.195E-02
time =  .21000E+01 -.215E-02 -.375E-02 -.907E-02 -.233E-01 -.378E-01 -.233E-01
                   -.907E-02 -.375E-02 -.215E-02
time =  .22000E+01 -.236E-02 -.406E-02 -.971E-02 -.245E-01 -.392E-01 -.245E-01
                   -.971E-02 -.406E-02 -.236E-02
time =  .23000E+01 -.257E-02 -.437E-02 -.103E-01 -.254E-01 -.403E-01 -.254E-01
                   -.103E-01 -.437E-02 -.257E-02
time =  .24000E+01 -.280E-02 -.468E-02 -.108E-01 -.261E-01 -.412E-01 -.261E-01
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                    -.108E-01 -.468E-02 -.280E-02
time =  .25000E+01 -.303E-02 -.497E-02 -.113E-01 -.268E-01 -.419E-01 -.268E-01
                    -.113E-01 -.497E-02 -.303E-02
time =  .26000E+01 -.325E-02 -.524E-02 -.117E-01 -.273E-01 -.425E-01 -.273E-01
                    -.117E-01 -.524E-02 -.325E-02
time =  .27000E+01 -.346E-02 -.549E-02 -.120E-01 -.277E-01 -.430E-01 -.277E-01
                    -.120E-01 -.549E-02 -.346E-02
time =  .28000E+01 -.366E-02 -.571E-02 -.123E-01 -.281E-01 -.434E-01 -.281E-01
                    -.123E-01 -.571E-02 -.366E-02
time =  .29000E+01 -.384E-02 -.592E-02 -.126E-01 -.284E-01 -.437E-01 -.284E-01
                    -.126E-01 -.592E-02 -.384E-02
time =  .30000E+01 -.401E-02 -.610E-02 -.128E-01 -.287E-01 -.440E-01 -.287E-01
                    -.128E-01 -.610E-02 -.401E-02
time =  .31000E+01 -.416E-02 -.627E-02 -.130E-01 -.289E-01 -.442E-01 -.289E-01
                    -.130E-01 -.627E-02 -.416E-02
time =  .32000E+01 -.430E-02 -.641E-02 -.131E-01 -.291E-01 -.444E-01 -.291E-01
                    -.131E-01 -.641E-02 -.430E-02
time =  .33000E+01 -.442E-02 -.655E-02 -.133E-01 -.293E-01 -.446E-01 -.293E-01
                    -.133E-01 -.655E-02 -.442E-02
time =  .34000E+01 -.453E-02 -.666E-02 -.134E-01 -.294E-01 -.448E-01 -.294E-01
                    -.134E-01 -.666E-02 -.453E-02
time =  .35000E+01 -.463E-02 -.677E-02 -.135E-01 -.295E-01 -.449E-01 -.295E-01
                    -.135E-01 -.677E-02 -.463E-02
time =  .36000E+01 -.472E-02 -.686E-02 -.136E-01 -.296E-01 -.450E-01 -.296E-01
                    -.136E-01 -.686E-02 -.472E-02
time =  .37000E+01 -.481E-02 -.695E-02 -.137E-01 -.297E-01 -.451E-01 -.297E-01
                    -.137E-01 -.695E-02 -.481E-02
time =  .38000E+01 -.488E-02 -.702E-02 -.138E-01 -.298E-01 -.452E-01 -.298E-01
                    -.138E-01 -.702E-02 -.488E-02
time =  .39000E+01 -.494E-02 -.709E-02 -.139E-01 -.299E-01 -.453E-01 -.299E-01
                    -.139E-01 -.709E-02 -.494E-02
time =  .40000E+01 -.500E-02 -.715E-02 -.140E-01 -.300E-01 -.453E-01 -.300E-01
                    -.140E-01 -.715E-02 -.500E-02
time =  .41000E+01 -.506E-02 -.720E-02 -.140E-01 -.300E-01 -.454E-01 -.300E-01
                    -.140E-01 -.720E-02 -.506E-02
time =  .42000E+01 -.510E-02 -.725E-02 -.141E-01 -.301E-01 -.455E-01 -.301E-01
                    -.141E-01 -.725E-02 -.510E-02
time =  .43000E+01 -.515E-02 -.730E-02 -.141E-01 -.301E-01 -.455E-01 -.301E-01
                    -.141E-01 -.730E-02 -.515E-02
time =  .44000E+01 -.519E-02 -.734E-02 -.141E-01 -.302E-01 -.455E-01 -.302E-01
                    -.141E-01 -.734E-02 -.519E-02
time =  .45000E+01 -.522E-02 -.737E-02 -.142E-01 -.302E-01 -.456E-01 -.302E-01
                    -.142E-01 -.737E-02 -.522E-02
time =  .46000E+01 -.525E-02 -.740E-02 -.142E-01 -.302E-01 -.456E-01 -.302E-01
                    -.142E-01 -.740E-02 -.525E-02
time =  .47000E+01 -.528E-02 -.743E-02 -.142E-01 -.303E-01 -.457E-01 -.303E-01
                    -.142E-01 -.743E-02 -.528E-02
time =  .48000E+01 -.531E-02 -.746E-02 -.143E-01 -.303E-01 -.457E-01 -.303E-01
                    -.143E-01 -.746E-02 -.531E-02
time =  .49000E+01 -.533E-02 -.748E-02 -.143E-01 -.303E-01 -.457E-01 -.303E-01
                    -.143E-01 -.748E-02 -.533E-02
time =  .50000E+01 -.535E-02 -.750E-02 -.143E-01 -.304E-01 -.457E-01 -.304E-01
                    -.143E-01 -.750E-02 -.535E-02
time =  .51000E+01 -.537E-02 -.752E-02 -.143E-01 -.304E-01 -.457E-01 -.304E-01
                    -.143E-01 -.752E-02 -.537E-02
time =  .52000E+01 -.539E-02 -.754E-02 -.144E-01 -.304E-01 -.458E-01 -.304E-01
                    -.144E-01 -.754E-02 -.539E-02
time =  .53000E+01 -.540E-02 -.756E-02 -.144E-01 -.304E-01 -.458E-01 -.304E-01
                    -.144E-01 -.756E-02 -.540E-02
time =  .54000E+01 -.542E-02 -.757E-02 -.144E-01 -.304E-01 -.458E-01 -.304E-01
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                    -.144E-01 -.757E-02 -.542E-02
time =  .55000E+01 -.543E-02 -.759E-02 -.144E-01 -.304E-01 -.458E-01 -.304E-01
                    -.144E-01 -.759E-02 -.543E-02
time =  .56000E+01 -.545E-02 -.760E-02 -.144E-01 -.305E-01 -.458E-01 -.305E-01
                    -.144E-01 -.760E-02 -.545E-02
time =  .57000E+01 -.546E-02 -.761E-02 -.144E-01 -.305E-01 -.458E-01 -.305E-01
                    -.144E-01 -.761E-02 -.546E-02
time =  .58000E+01 -.547E-02 -.762E-02 -.144E-01 -.305E-01 -.458E-01 -.305E-01
                    -.144E-01 -.762E-02 -.547E-02
time =  .59000E+01 -.548E-02 -.763E-02 -.144E-01 -.305E-01 -.459E-01 -.305E-01
                    -.144E-01 -.763E-02 -.548E-02
time =  .60000E+01 -.549E-02 -.764E-02 -.145E-01 -.305E-01 -.459E-01 -.305E-01
                    -.145E-01 -.764E-02 -.549E-02
time =  .61000E+01 -.549E-02 -.765E-02 -.145E-01 -.305E-01 -.459E-01 -.305E-01
                    -.145E-01 -.765E-02 -.549E-02
time =  .62000E+01 -.550E-02 -.765E-02 -.145E-01 -.305E-01 -.459E-01 -.305E-01
                    -.145E-01 -.765E-02 -.550E-02
time =  .63000E+01 -.551E-02 -.766E-02 -.145E-01 -.305E-01 -.459E-01 -.305E-01
                    -.145E-01 -.766E-02 -.551E-02
time =  .64000E+01 -.551E-02 -.767E-02 -.145E-01 -.305E-01 -.459E-01 -.305E-01
                    -.145E-01 -.767E-02 -.551E-02
time =  .65000E+01 -.552E-02 -.767E-02 -.145E-01 -.305E-01 -.459E-01 -.305E-01
                    -.145E-01 -.767E-02 -.552E-02
time =  .66000E+01 -.553E-02 -.768E-02 -.145E-01 -.305E-01 -.459E-01 -.305E-01
                    -.145E-01 -.768E-02 -.553E-02
time =  .67000E+01 -.553E-02 -.768E-02 -.145E-01 -.305E-01 -.459E-01 -.305E-01
                    -.145E-01 -.768E-02 -.553E-02
time =  .68000E+01 -.554E-02 -.769E-02 -.145E-01 -.305E-01 -.459E-01 -.305E-01
                    -.145E-01 -.769E-02 -.554E-02
time =  .69000E+01 -.554E-02 -.769E-02 -.145E-01 -.305E-01 -.459E-01 -.305E-01
                    -.145E-01 -.769E-02 -.554E-02
time =  .70000E+01 -.554E-02 -.770E-02 -.145E-01 -.306E-01 -.459E-01 -.306E-01
                    -.145E-01 -.770E-02 -.554E-02
time =  .71000E+01 -.555E-02 -.770E-02 -.145E-01 -.306E-01 -.459E-01 -.306E-01
                    -.145E-01 -.770E-02 -.555E-02
time =  .72000E+01 -.555E-02 -.771E-02 -.145E-01 -.306E-01 -.459E-01 -.306E-01
                    -.145E-01 -.771E-02 -.555E-02
time =  .73000E+01 -.556E-02 -.771E-02 -.145E-01 -.306E-01 -.459E-01 -.306E-01
                    -.145E-01 -.771E-02 -.556E-02
time =  .74000E+01 -.556E-02 -.771E-02 -.145E-01 -.306E-01 -.459E-01 -.306E-01
                    -.145E-01 -.771E-02 -.556E-02
time =  .75000E+01 -.556E-02 -.771E-02 -.145E-01 -.306E-01 -.459E-01 -.306E-01
                    -.145E-01 -.771E-02 -.556E-02
time =  .76000E+01 -.556E-02 -.772E-02 -.145E-01 -.306E-01 -.459E-01 -.306E-01
                    -.145E-01 -.772E-02 -.556E-02
time =  .77000E+01 -.557E-02 -.772E-02 -.145E-01 -.306E-01 -.460E-01 -.306E-01
                    -.145E-01 -.772E-02 -.557E-02
time =  .78000E+01 -.557E-02 -.772E-02 -.145E-01 -.306E-01 -.460E-01 -.306E-01
                    -.145E-01 -.772E-02 -.557E-02
time =  .79000E+01 -.557E-02 -.772E-02 -.145E-01 -.306E-01 -.460E-01 -.306E-01
                    -.145E-01 -.772E-02 -.557E-02
time =  .80000E+01 -.557E-02 -.773E-02 -.145E-01 -.306E-01 -.460E-01 -.306E-01
                    -.145E-01 -.773E-02 -.557E-02
time =  .81000E+01 -.558E-02 -.773E-02 -.145E-01 -.306E-01 -.460E-01 -.306E-01
                    -.145E-01 -.773E-02 -.558E-02
time =  .82000E+01 -.558E-02 -.773E-02 -.145E-01 -.306E-01 -.460E-01 -.306E-01
                    -.145E-01 -.773E-02 -.558E-02
time =  .83000E+01 -.558E-02 -.773E-02 -.145E-01 -.306E-01 -.460E-01 -.306E-01
                    -.145E-01 -.773E-02 -.558E-02
time =  .84000E+01 -.558E-02 -.773E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
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                    -.146E-01 -.773E-02 -.558E-02
time =  .85000E+01 -.558E-02 -.774E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.774E-02 -.558E-02
time =  .86000E+01 -.558E-02 -.774E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.774E-02 -.558E-02
time =  .87000E+01 -.559E-02 -.774E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.774E-02 -.559E-02
time =  .88000E+01 -.559E-02 -.774E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.774E-02 -.559E-02
time =  .89000E+01 -.559E-02 -.774E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.774E-02 -.559E-02
time =  .90000E+01 -.559E-02 -.774E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.774E-02 -.559E-02
time =  .91000E+01 -.559E-02 -.774E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.774E-02 -.559E-02
time =  .92000E+01 -.559E-02 -.775E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.775E-02 -.559E-02
time =  .93000E+01 -.559E-02 -.775E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.775E-02 -.559E-02
time =  .94000E+01 -.559E-02 -.775E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.775E-02 -.559E-02
time =  .95000E+01 -.560E-02 -.775E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.775E-02 -.560E-02
time =  .96000E+01 -.560E-02 -.775E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.775E-02 -.560E-02
time =  .97000E+01 -.560E-02 -.775E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.775E-02 -.560E-02
time =  .98000E+01 -.560E-02 -.775E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.775E-02 -.560E-02
time =  .99000E+01 -.560E-02 -.775E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.775E-02 -.560E-02
time =  .10000E+02 -.560E-02 -.775E-02 -.146E-01 -.306E-01 -.460E-01 -.306E-01
                    -.146E-01 -.775E-02 -.560E-02
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